

Electrical Standard Details

University of Saskatchewan

Prepared by: Campus Engineering and
Sustainability

Release Date: July 14, 2026

USask Electrical Standard Detail Directions: The standard details contained herein are intended to be incorporated into the Consultant's final, project specific drawing package. The project specific details are expected to include any and all details that are required to adequately inform contractors on required installation processes. Details not included in the in this document may still be required for a complete, well-designed project. **It is the consultant's responsibility to ensure all details match USask requirements. Any deviations or revisions to any detail included in this document requires written consent from the USask Engineering department. The consultant is liable for any omissions, errors, or incorrect equipment or components supplied to site, or rework required to suit USask's requirements.**

These details shall be used in conjunction with USask's Design Guidelines and Master Specifications. Any conflicts shall be brought to the attention of USask Engineering staff for clarification prior to design completion.

CAD versions of the details contained herein can be provided to consultants upon request. Please request required details from the USask Electrical Engineering staff assigned to your specific project.

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Wednesday, February 4, 2026 10:50:47 AM ; DWG To PDF.pc3

Tabloid (279.4x431.8mm)

DETAIL #	REVISED DATE	DRAWING DESCRIPTION
E/TOC	03-FEB-2026	U OF S ELECTRICAL DETAIL TABLE OF CONTENTS
E/1	08-JAN-2026	COMMUNICATION CONDUIT & CABLE TRAY DETAILS
E/2	08-JAN-2026	25KV CABLE TRENCH ELEVATIONS (VARIOUS)
E/3	08-JAN-2026	OUTDOOR ELECTRICAL PANEL
E/4	03-FEB-2026	PARKING PEDESTAL, CURB DISTANCE & TRENCH SECTION
E/5	14-JUL-2026	LIGHTING POLE, GENERAL NOTES & SECTION DETAIL
E/6	08-JAN-2026	SWITCHING CUBICLE, PLAN VIEW, SECTION AND DETAILS
E/7	08-JAN-2026	BOLLARD AND BASE, ELEVATION VIEW
E/8	08-JAN-2026	ELECTRICAL MANHOLE, PLAN VIEW AND SECTION DETAILS
E/9	03-FEB-2026	GROUNDING/BONDING, BUILDING AND HIGH VOLTAGE SYSTEMS
E/10	08-JAN-2026	GENERAL GROUNDING METHODS, VARIOUS TYPES
E/11	08-JAN-2026	GENERAL GROUNDING METHODS, FENCED AREA
E/12	12-JAN-2026	PHONE PEDESTAL BASE PLAN VIEW & ELEVATION
E/13	30-JAN-2026	EMERGENCY LIGHTING CONTROL, 2-WIRE, 3-WIRE, AND 4-WIRE
E/14	12-JAN-2026	REMOTE BALLAST MOUNTING LAYOUT
E/15	15-JAN-2026	CARD ACCESS SYSTEM DETAILS
E/16	12-JAN-2026	DOOR ACCESS INTERFACE DETAIL
E/17	12-JAN-2026	FIRE ALARM SYSTEMS DOOR HOLD-OPEN BLOCK/SCHEMATIC
E/18	12-JAN-2026	FIRE ALARM PREACTION SYSTEM DETAILS
E/19	12-JAN-2026	FIRE ALARM SYSTEMS FAN SHUTDOWN SCHEMATIC DIAGRAM
E/20	12-JAN-2026	THREE PHASE MOTOR STARTERS SCHEMATIC DIAGRAMS
E/21	12-JAN-2026	VFD MOTOR STARTERS SCHEMATIC DIAGRAMS
E/22	12-JAN-2026	SINGLE PHASE MANUAL STARTER MOTOR DETAILS (VARIOUS USES)
E/23	12-JAN-2026	TWO SPEED STARTER MOTOR CONTROL CIRCUIT
E/24	12-JAN-2026	GENERATOR TEMPERATURE CONTROL (GD & RR)
E/25	12-JAN-2026	GENERATOR FAULT AND RUN MONITORING SCHEMATIC DIAGRAM
E/26	03-FEB-2026	ELEVATOR DISTRIBUTION ELECTRICAL ELEVATION
E/27	08-JAN-2026	COMMUNICATIONS PULL PIT & DUCT BANK DETAILS
E/28	03-FEB-2026	DATA NETWORK SERVER CLOSET
E/29	12-JAN-2026	DATA NETWORK OUTLET WALL PLATE LAYOUT
E/30	[ON HOLD]	SAFETY WASH/SHOWER VALVE EXERCISER / ALARM (NON-CCMS)
E/31	12-JAN-2026	VIDEO PROJECTOR SUSPENDED CEILING MOUNTING DETAILS
E/32	12-JAN-2026	OUTDOOR LIGHTING CONTROL WIRING DIAGRAMS
E/33	03-FEB-2026	OFFICE LIGHTING CONTROL WIRING DIAGRAMS
E/34	15-JAN-2026	T-BAR CEILING MOUNTED DEVICES
E/35	15-JAN-2026	AV MONITOR WALL MOUNTING LAYOUT
E/36	[ON HOLD]	TOUCHLESS FAUCET SEPARATE COMPONENT
E/37	16-JAN-2026	ION 7300 SERIES METER WIRING DIAGRAM
E/38	16-JAN-2026	GENERATOR INTERFACE SYSTEM - CONTROL PANEL SCHEMATIC AND BLOCK DIAGRAM

DETAIL #	DATE	DRAWING DESCRIPTION
E/39	16-JAN-2026	GENERATOR INTERFACE SYSTEM - FOXFAB PANEL SCHEMATIC AND BLOCK DIAGRAM
E/40	16-JAN-2026	GENERATOR START MODES
E/41	16-JAN-2026	OFFICE ELECTRICAL OUTLETS LAYOUT
E/42	DY-MON-YEAR	RESERVED FOR FUTURE
E/43	DY-MON-YEAR	RESERVED FOR FUTURE
E/44	DY-MON-YEAR	RESERVED FOR FUTURE
E/45	DY-MON-YEAR	RESERVED FOR FUTURE

For Reference

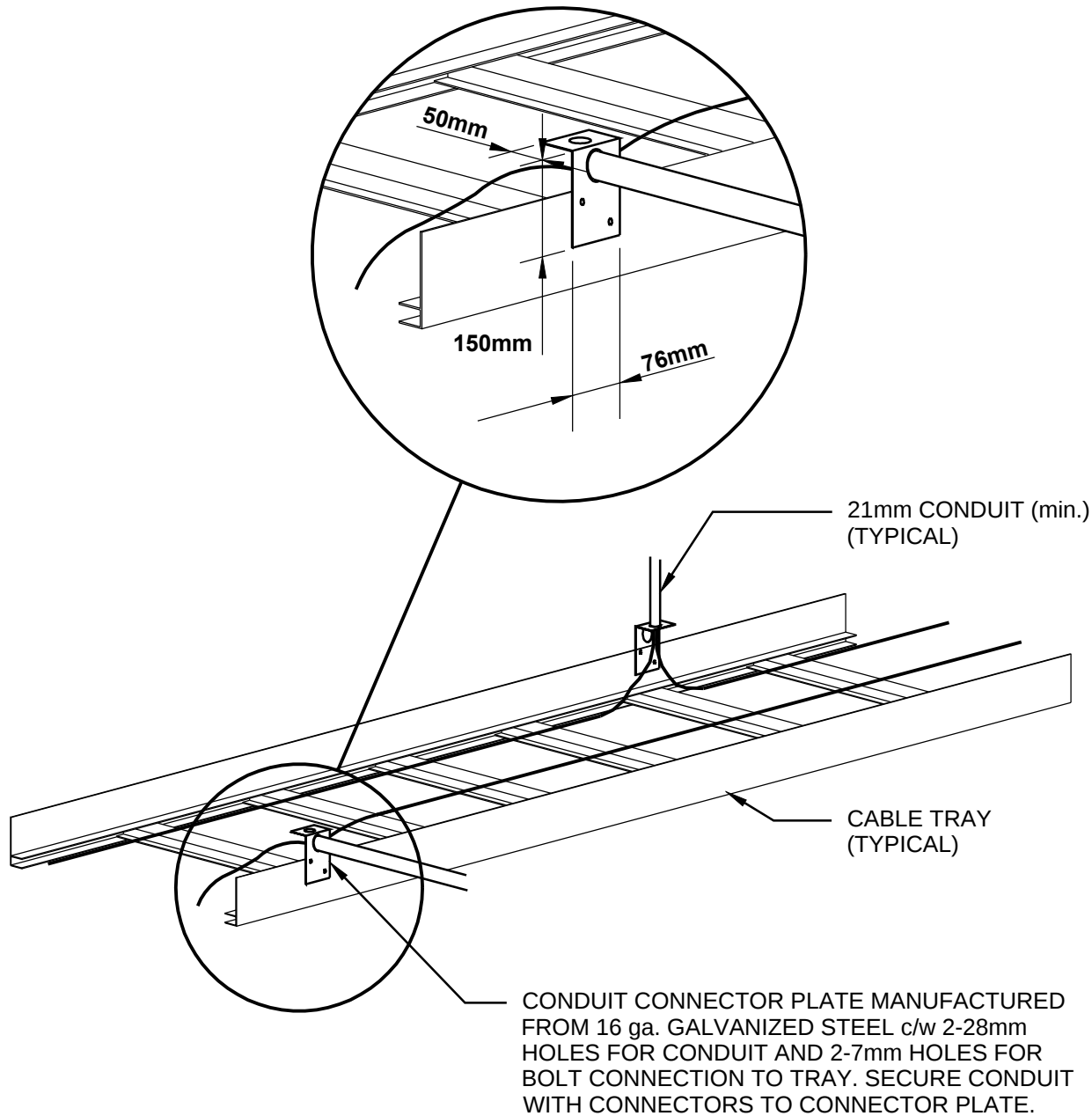
0	03-FEB-26	ISSUED FOR REFERENCE	LJD
REV.	DATE	DESCRIPTION	APP.



PROJECT NAME U OF S ELECTRICAL ENGINEERING ELECTRICAL DETAILS DRAWING NAME TABLE OF CONTENTS DRAWING LIST	PROJ. FILE NO.	DRAWING NO. E/TOC
	DRAWN BY D. DUBOWSKI	
	APPROVED BY D. BALIAD	SCALE N/A
	DATE 14-NOV-2025	SHEET 1 OF 1

W:\PMO\PMO_Public\Electrical Library\Details\Revised Details\E1 - Communication Conduit And Cable Tray(08JAN2026).dwg ; Thursday, January 8, 2026 1:28:18 PM ; DWG To PDF.pc3

Tabloid (279.4x431.8mm)

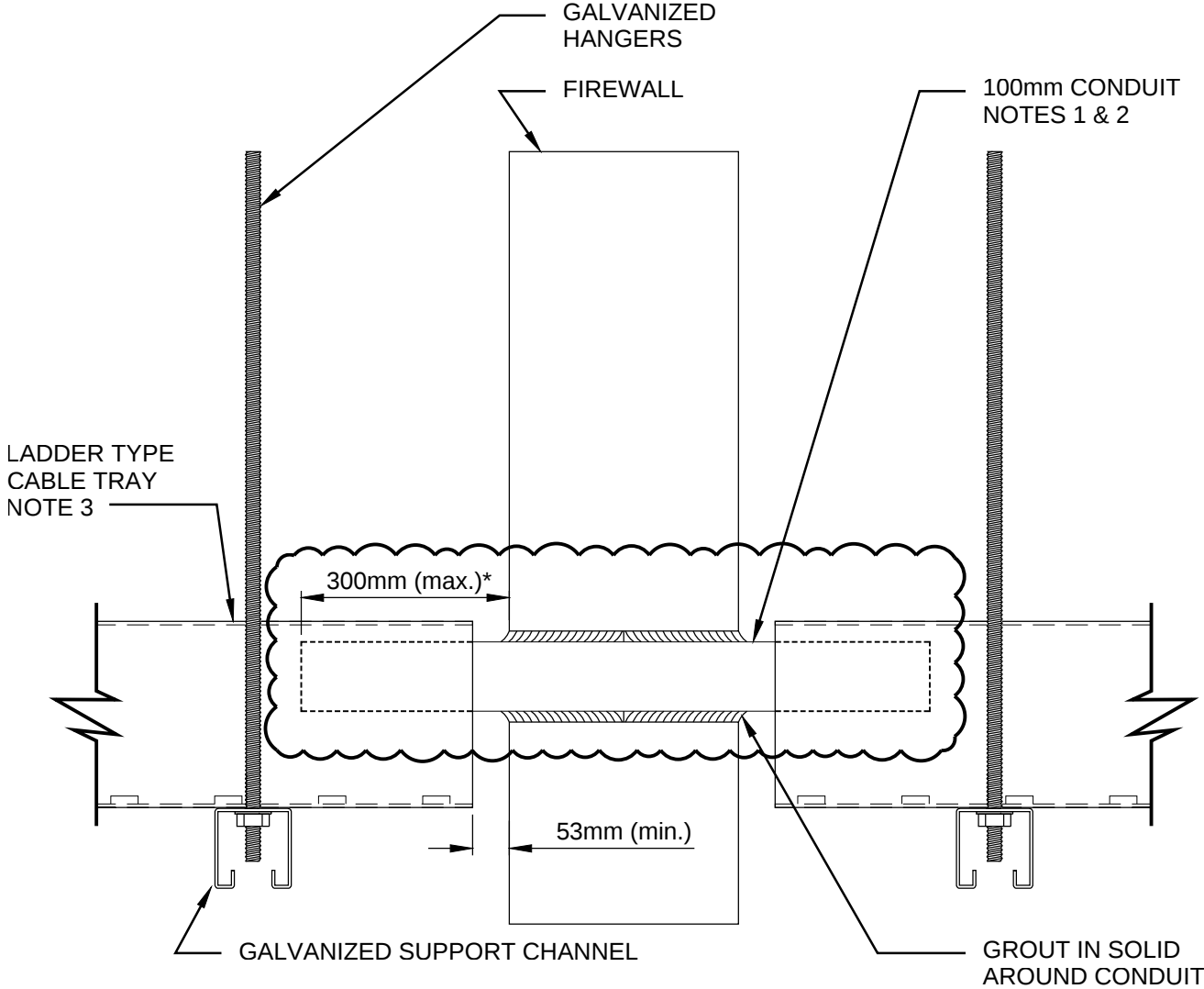


NOTE:

CONNECTOR PLATE IS TYPICAL FOR 3/4" [21] CONDUIT. PLATE SIZE AND MOUNTING HARDWARE AND ADJUSTED ACCORDINGLY FOR LARGER CONDUIT SIZES.

1

CONNECTION DETAIL
COMMUNICATION CONDUIT & CABLE TRAY



NOTES:

1. PROVIDE 2 CONDUITS FOR 150mm CABLE TRAY, 4 CONDUITS FOR 305mm CABLE TRAY. LOCATION OF CONDUIT IN WALL IS DEPENDANT UPON CABLE TRAY CONFIGURATION AND CLEARANCES.
2. METHOD AND TYPE OF FIRE STOPPING TO BE SPECIFIED BY MASTER FORMAT SECTION 07 84 00 - FIRESTOPPING. DIMENSION SHOWN IS A MAXIMUM DISTANCE AND SHALL BE ADJUSTED ACCORDING TO FIRESTOPPING METHOD BEING INSTALLED.
3. CABLE TRAY SIZE AND TYPE MAY VARY DEPENDING UPON APPLICATION. CONFIRM WITH U OF S BEFORE INSTALLATION OF CONDUITS IN FIREWALL.

2

WALL PENETRATION
COMMUNICATION CONDUIT & CABLE TRAY

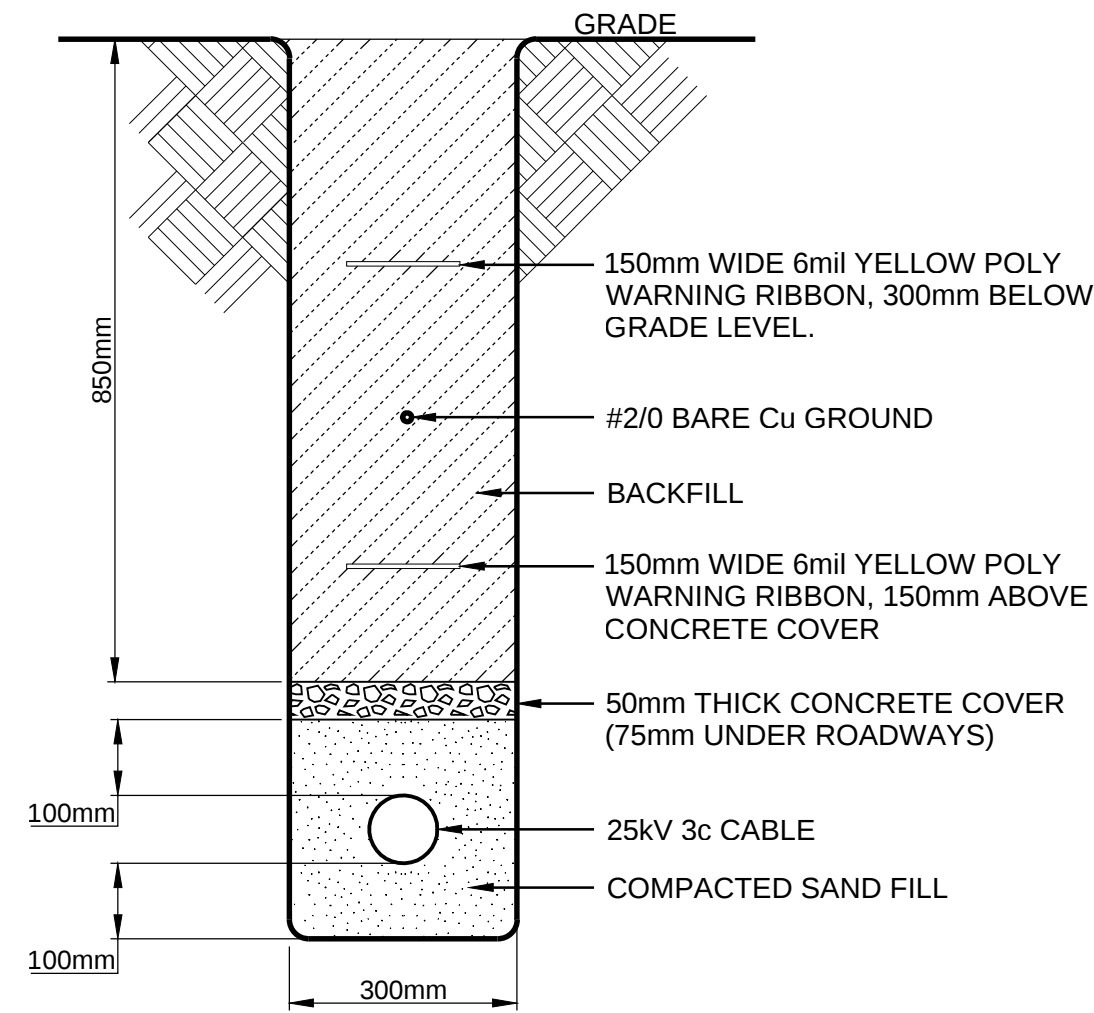
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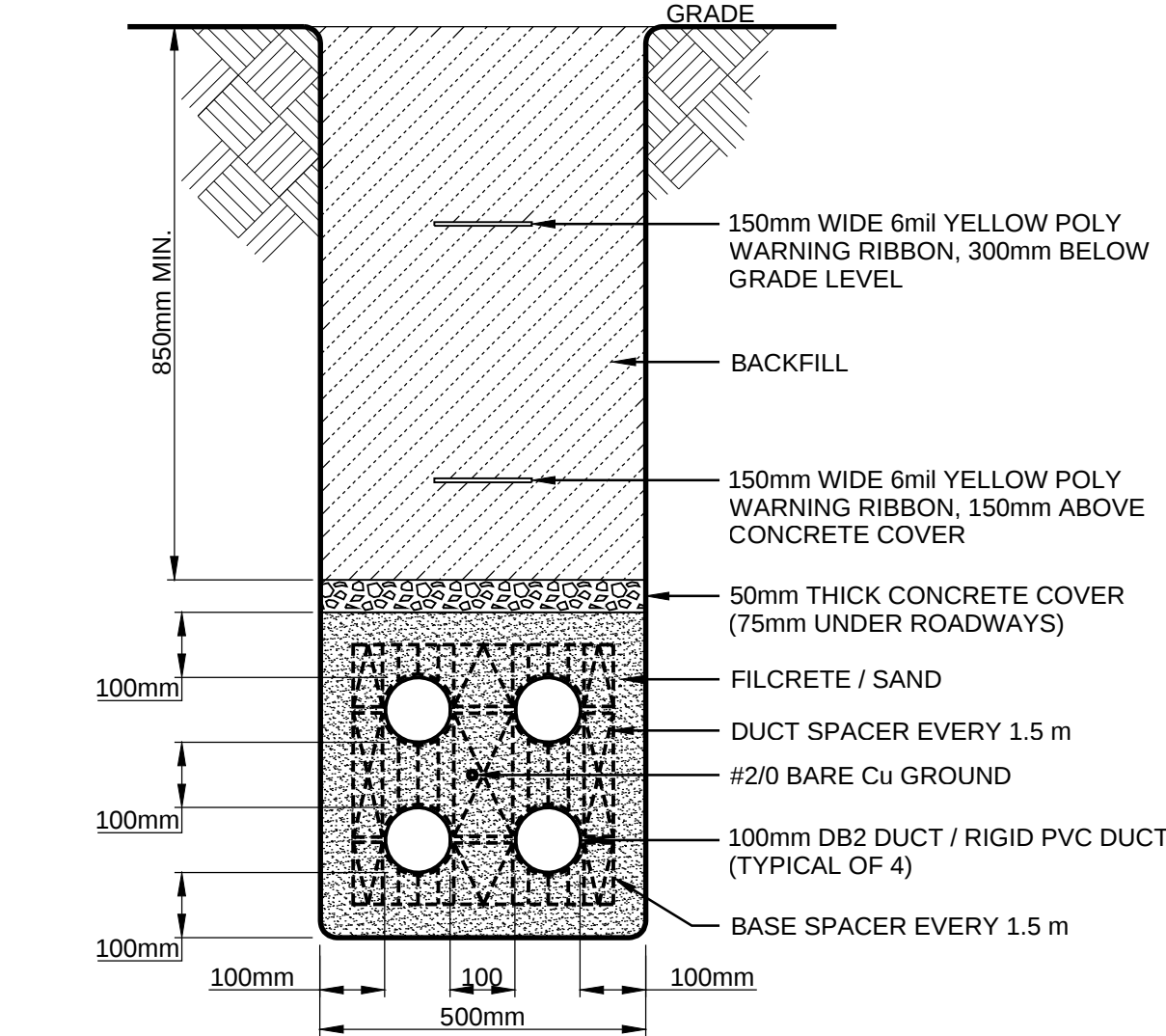
PROJECT NAME
**ELECTRICAL DETAILS
COMM. CONDUIT & CABLE TRAY**
DRAWING NAME
**CONDUIT CONNECTION AND
WALL PENETRATION**

PROJ. FILE NO.	DRAWING NO.
DRAWN BY D. DUBOWSKI	E/1
APPROVED BY G. POOLE	SCALE N/A
DATE 15-OCT-2025	SHEET 1 OF 1

A1 (594x841mm) W:\P\O\P\O_Public\Electrical Library\Details\Revised Details\E2 - 25kV Cable Trench Elevations (06JAN2026).dwg - Thursday, January 8, 2026 10:37:50 AM - DWG To PDF.pc3

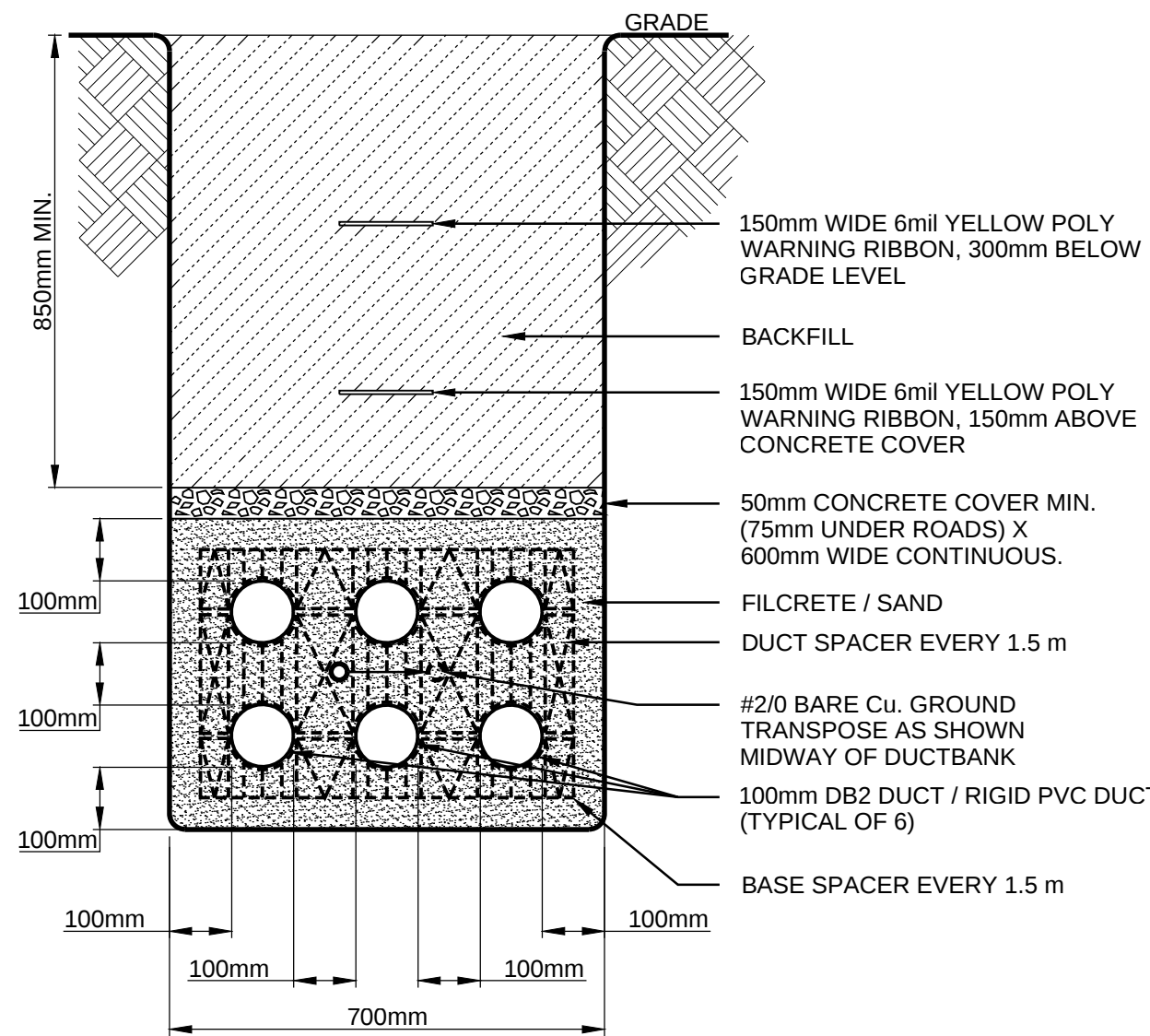


1 25kV DIRECT-BURIED CABLE
TRENCH SECTION DETAIL



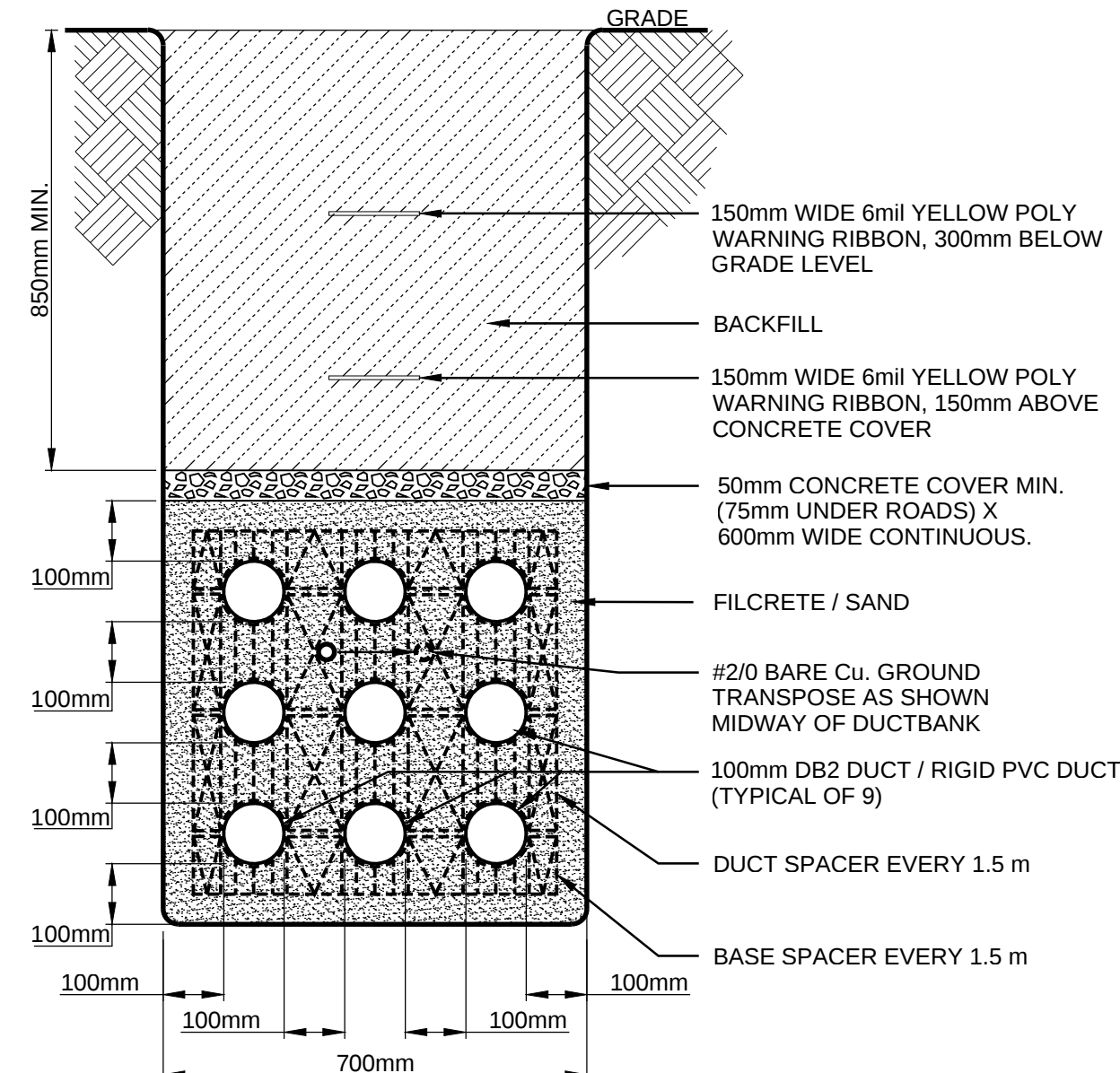
NOTE:
WHEN DB2 DUCT IS USED, THE FILL MATERIAL SHALL BE FILCRETE AND WHEN SCHEDULE 40 RIGID PVC DUCT IS USED, THE FILL MATERIAL SHALL BE SAND UNLESS STATED OTHERWISE.

2 25kV 2x2 DUCT BANK
TRENCH SECTION DETAIL



NOTE:
WHEN DB2 DUCT IS USED, THE FILL MATERIAL SHALL BE FILCRETE AND WHEN SCHEDULE 40 RIGID PVC DUCT IS USED, THE FILL MATERIAL MAY BE SAND UNLESS STATED OTHERWISE.

3 25kV 2x3 DUCT BANK
TRENCH SECTION DETAIL



NOTE:
WHEN DB2 DUCT IS USED, THE FILL MATERIAL SHALL BE FILCRETE AND WHEN SCHEDULE 40 RIGID PVC DUCT IS USED, THE FILL MATERIAL SHALL BE SAND UNLESS STATED OTHERWISE.

4 25kV 3x3 DUCT BANK
TRENCH SECTION DETAIL

GENERAL NOTES:

- FOR ADDITIONAL INFORMATION REFERENCE THE FOLLOWING ELECTRICAL SPECIFICATION SECTIONS:
 - SECTION 260500: COMMON WORK RESULTS FOR ELECTRICAL
 - SECTION 260543: UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS
 - SECTION 260526: GROUNDING AND BONDING
 - SECTION 260553: ELECTRICAL IDENTIFICATION
 - SECTION 336573: CONCRETE ENCASED DUCT BANKS AND MANHOLES

Legend

0	ISSUED FOR REFERENCE	DMB	08-JAN-2026
Rev.	Description	Appd.	Date

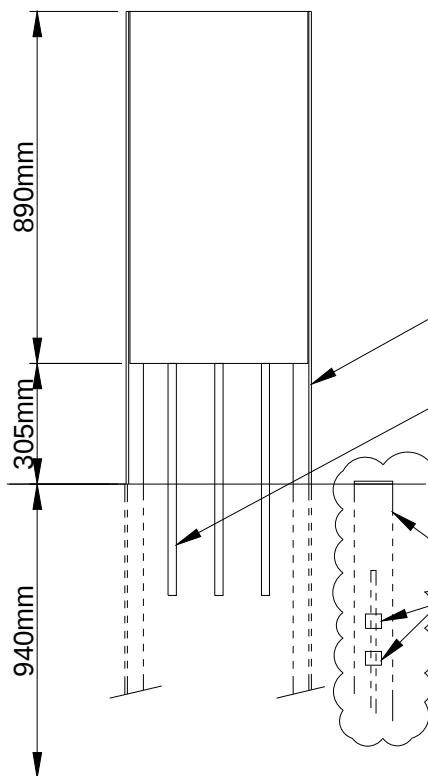
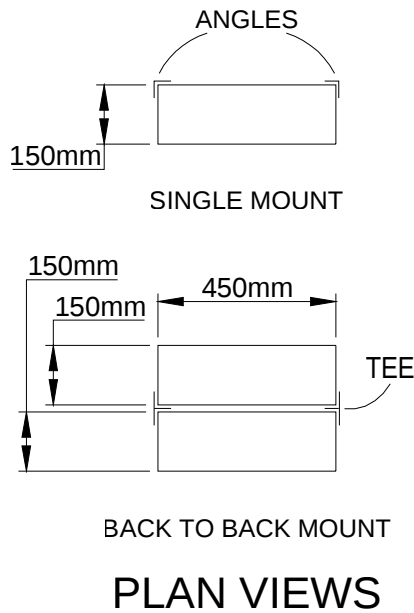
Permits / Seals

Project
ELECTRICAL DETAILS
25kV TRENCH ELEVATIONS

Title
**DIRECT-BURIED CABLE AND
DUCT BANK DETAILS**

Dwn. D. DUBOWSKI	Chkd. D. BALIAD	Dsgn. D. DUBOWSKI
Project No.	Scale As Noted	Date 17-SEP-2025
UofS Drawing No.	Drawing No. E2	Sheet 1 OF 1
	Revision 0	

For Reference



ELEVATION

PANEL SPECIFICATIONS

1. ONE OR TWO ELECTRICAL PANELS IN WEATHERPROOF ENCLOSURES MOUNTED AS INDICATED. PANELS TO HAVE 225A MAINS AND BE 42 CCT. CAPACITY c/w REQUIRED 15A-1P + 15A-2P BOLT-ON BREAKERS AND 450mm HUBS AT BOTTOM OF PANELS.
2. PANELS TO BE FREE OF EXTERIOR NAME PLATES.
3. PANELS, TEE BARS AND CONDUITS TO HAVE 2 COATS OF RUSTOLIUM #906 GRAY OR ASA PAINT. ANGLES AND TEE BARS TO BE PRIMED WITH PITTSBURGH INHIBITIVE RUST PRIMER PRIOR TO APPLICATION OF 2 COATS OF PAINT.
4. WEATHERPROOF ENCLOSURE: SIDE-HINGED DOORS, VAULT-TYPE HANDLE c/w PROVISIONS FOR PADLOCKING, ENTIRE ENCLOSURE SHALL BE CSA TYPE 3R CONSTRUCTION, ALL SEAMS NEOPRENE SEALED.
5. MAIN SERVICE ENTRY TO BE AT BOTTOM OF PANEL.
6. THE PANEL DIRECTORY (TYPED) SHALL IDENTIFY EACH BREAKER AND THE CORRESPONDING STALL NUMBER.
7. 1-16mm X 3050 COPPER CLAD GROUND ROD SHALL BE INSTALLED FOR EACH PANEL. INSTALL ROD IN GROUND INSPECTION WELL.
8. BARE COPPER CONDUCTOR SHALL BE USED FOR GROUNDING - #6 TO PANEL, #10 TO POSTS.
9. SPARE BREAKERS SHALL BE IDENTIFIED BY THE CONTRACTOR.

TEE BARS 64x32x6.3 - BOLT W.P. ENCLOSURES TO TEE BARS. USE 32x32x6.3 ANGLE IRON FOR SINGLE PANELS.

PVC CONDUITS FOR PANEL FEEDER, BRANCH CIRCUITS AND GROUND CONDUCTORS c/w BELL END FITTING TO 300mm ABOVE BOTTOM OF TRENCH. GALVANIZED EMC WHERE EXPOSED ABOVE GRADE.

INSPECTION WELL

TWO BURNDY COMPRESSION CONNECTORS, TYPE YGHR-C.

0	ISSUED FOR REFERENCE	DMB	08-JAN-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN

DATE **14-NOV-25**

SCALE **N.T.S.**

ELECTRICAL DETAILS
PARKING LOT PANEL
DETAILS &
SPECIFICATIONS



DRAWN BY **D. DUBOWSKI**

E

CHECKED BY **K. LEEDAHL**

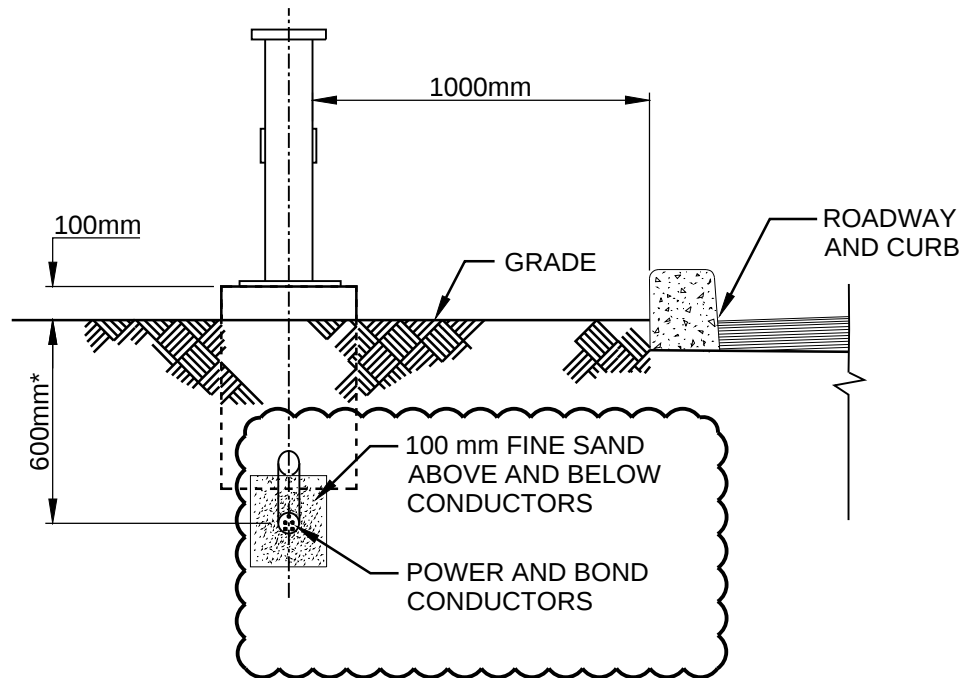
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APPROVED BY **D. BALIAD**

DRAWING NO.

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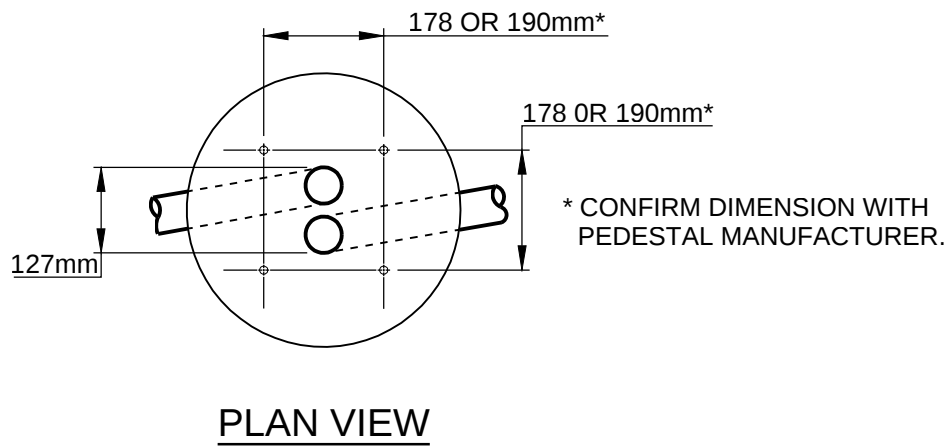
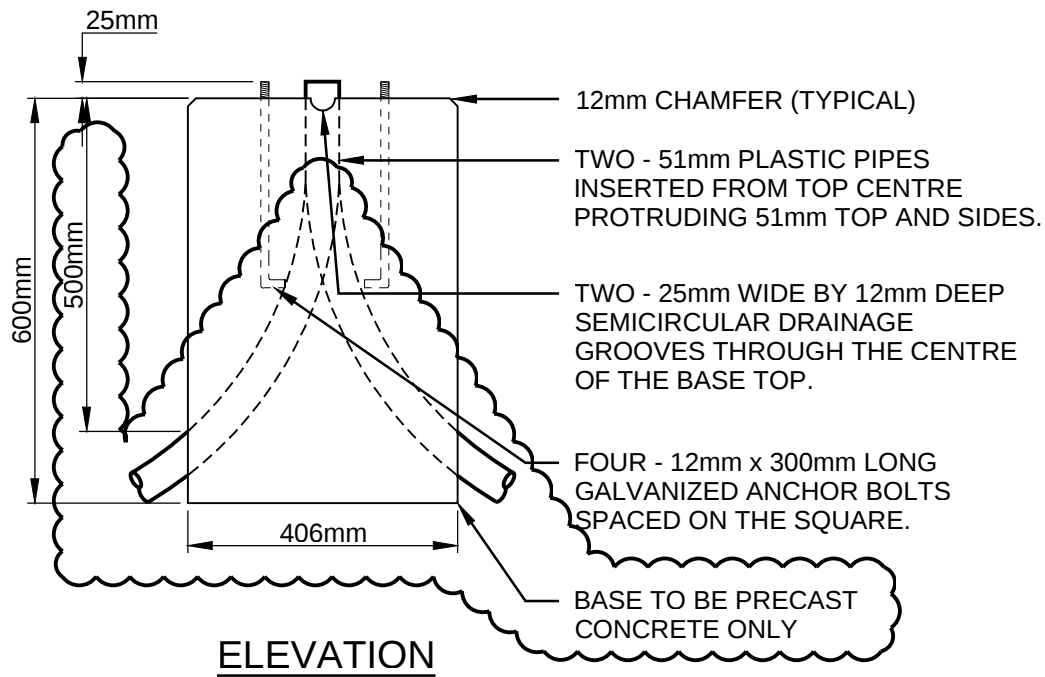
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NOTES:

- * CONDUCTORS TO BE 900mm BELOW GRADE IN VEHICULAR AREAS.
- POWER CIRCUIT TO BE THREE PHASE. SINGLE PEDESTAL SHALL BE WIRED EITHER A-B, B-C, OR C-A, WITH UNUSED PHASE PASSING UNDER PEDESTAL.
- THE UNDERGROUND CABLE INSTALLATION SHALL BE PROVIDED WITH A SUITABLE MARKING TAPE BURIED APPROXIMATELY HALFWAY BETWEEN THE INSTALLATION AND GRADE LEVEL.

1 PARKING PEDESTAL
CURB & TRENCH SECTION DETAIL



2 PARKING PEDESTAL BASE
PLAN & ELEVATION DETAIL

For Reference

REV.	DATE	DESCRIPTION	APP.
0	03-FEB-26	ISSUED FOR REFERENCE	LJD



PROJECT NAME
**ELECTRICAL DETAILS
PARKING PEDESTAL & BASE**
DRAWING NAME
**CURB/TRENCH SECTION
PLAN AND ELEVATION**

PROJ. FILE NO.
DRAWN BY D. DUBOWSKI
APPROVED BY G. POOLE
DATE 17-SEP-2025

DRAWING NO.
E/4
SCALE N/A
SHEET 1 OF 1

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UNIVERSITY OF
SASKATCHEWAN

Planning, Design and Construction

University of Saskatchewan

University Services Building

110 Maintenance Road

Saskatoon SK

Canada S7N 5C5

Legend

0	ISSUED FOR REFERENCE	LJD	14-JUL-2026
Rev.	Description	Appd.	Date

Permits / Seals

Project

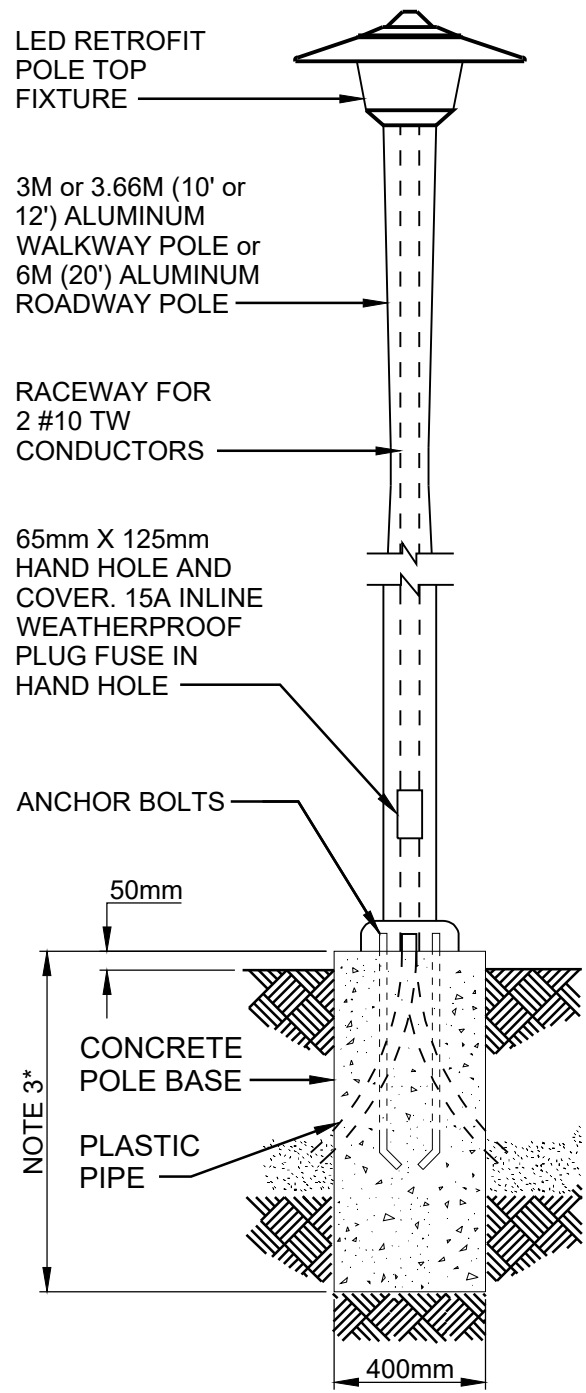
ELECTRICAL DETAILS

OUTDOOR POLE LIGHTING

Title

LIGHT FIXTURES, POLES, BASES,
BASE AND TRENCH ELEVATIONS

Dwn. D. DUBOWSKI	Chkd. L. DOBSON	Dsgn. D. DUBOWSKI
Project No.		Scale N/A
UofS Drawing No.		Date 10-OCT-2025
Drawing No. E5	Sheet 1 OF 1	Revision 0



1 LED RETROFIT POLE LIGHT
GENERAL NOTES & SECTION DETAIL

OLDER LED RETROFIT VERSIONS:

WALKWAY AND AREA LIGHTING

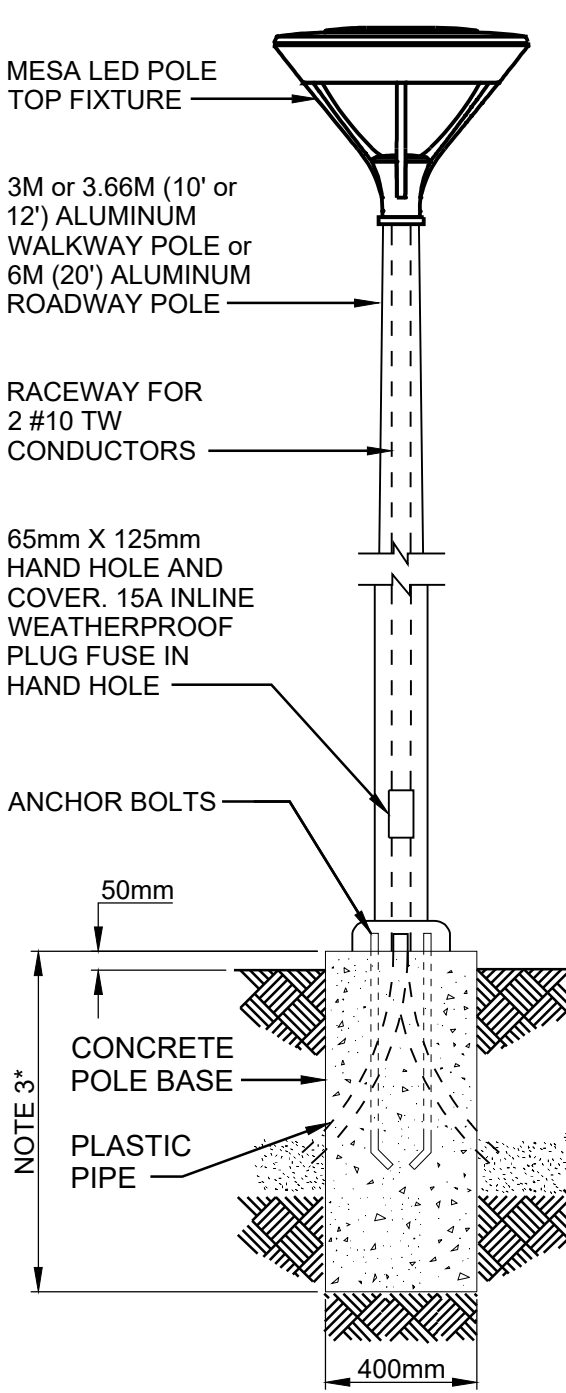
- POLE: Manufacturer: AMERICAN ELECTRIC
- #FN10-AB 3M/3.66M FLARELINE ALUMINUM TAPERED POLE c/w METHACRYLATE LAQUER FINISH, GRADE 2
- POLE: 3MM THICK BASES.
- #1246 CAST SHOE BASE, #1469 TOP LOCKING COLLAR & #X652328 BASE COVER.
- ACCESSORIES LESS ANCHOR BOLTS.
- LIGHT HEAD: #RK TWT R5 AY H4 CS NR FIXTURE ASSEMBLY, 24" HOOD TYPE V DISTRIBUTION, ACRYLIC OPTICAL ASSEMBLY.
- LED LAMP: Manufacturer: SYLVANIA ULTRA LED #LED45HIDR8SC2MOG 4/CS 1/SKU. 120-277V, 45W, 3000K/4000K/5000K LED LAMP, 80+ CRI, AND MOGUL BASE.

ROADWAY AND PARKING LOT LIGHTING

- SAME AS ABOVE EXCEPT:
- POLE: #FN20-AB 6M FLARELINE ALUMINUM POLE
 - #1260 CAST SHOE BASE & #X652349 BASE COVER
 - ACCESSORIES LESS ANCHOR BOLTS
 - LIGHT HEAD: #RK TWT R5 AY H8 CS NR FIXTURE ASSEMBLY, 28" HOOD TYPE V DISTRIBUTION, ACRYLIC OPTICAL ASSEMBLY.
 - LED LAMP: Manufacturer: SYLVANIA ULTRA LED #LED54HIDR8SC2MOG 4/CS 1/SKU. 120-277V, 54W, 3000K/4000K/5000K LED LAMP, 80+ CRI, AND MOGUL BASE

NOTES:

1. CABLE TERMINATIONS TO BE BURNDY UNITAP INSULATED MULTIPLE CONNECTOR PART No. BIT-2/0 OR APPROVED EQUAL.
2. FUSE PROTECTION TO BE AN E26 MEDIUM BASE RUBBER PIGTAIL LAMP HOLDER c/w BUSS T15 HOUSEHOLD FUSE.
3. * DENOTES 1550mm FOR 6M POLE AND 1250mm FOR 3M/3.66M POLE.



2 NEW LED POLE LIGHT
GENERAL NOTES & SECTION DETAIL

NEWER LED VERSIONS:

WALKWAY AND AREA LIGHTING

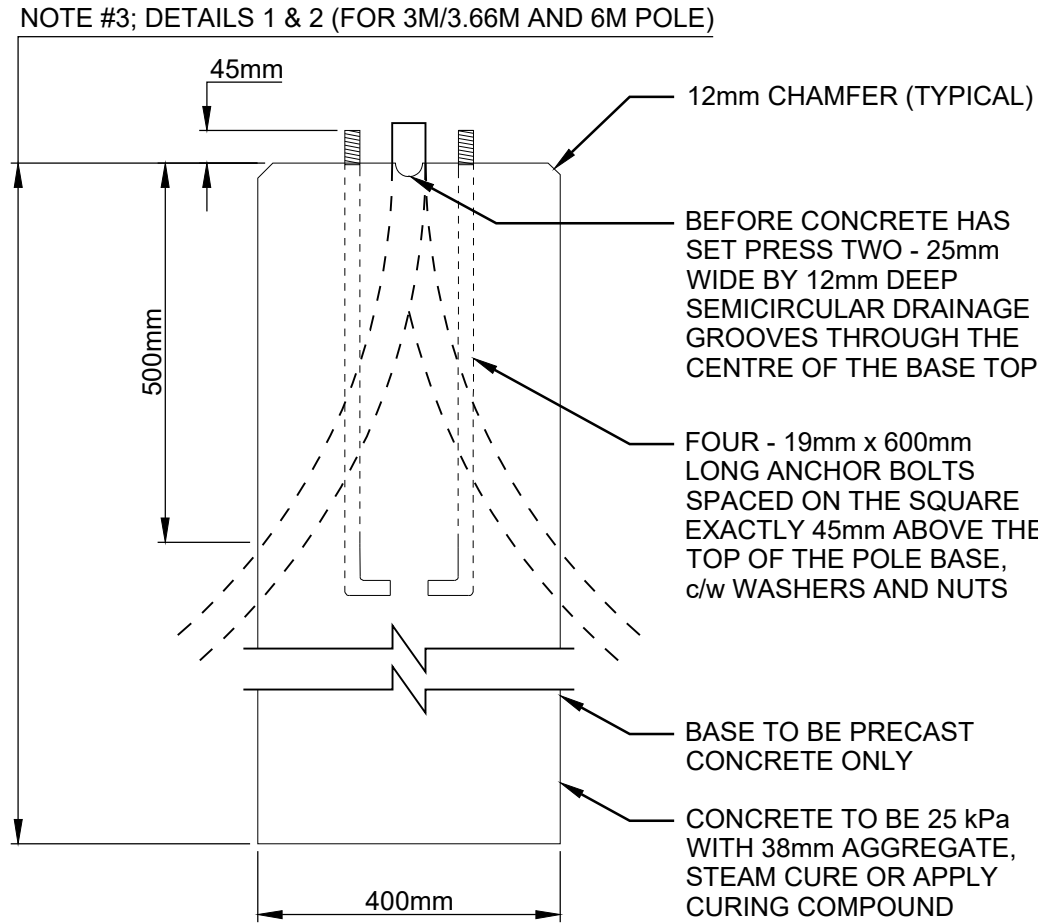
- POLE: Manufacturer: VALMONT STRUCTURES
- #4RH-10-2.5-3-CC-DP / #4RH-12-2.5-3-CC-DP 3M/3.66M ROUND TAPERED ALUMINUM ALLOY POLE c/w COOPER LIGHTING DARK PLATINUM FINISH, 3" O.D. x 4" HIGH
- TENON, T6 TEMPER 356 ALLOY ALUMINUM BASE
- #1246 CAST SHOE BASE
- #DT12AC-DP VALMONT BASE COVER
- ACCESSORIES LESS ANCHOR BOLTS
- LIGHT HEAD: COOPER LIGHTING INVUE MSA MESA AREA LUMINAIRE
- UNIVERSAL (120-277V), 3000K, 80 CRI LED ARRAY, DARK PLATINUM FINISH c/w LIGHT SQUARE TRIM PLATE TO MATCH HOUSING. REFER TO LIGHT SCHEDULE FOR FIXTURE TYPES WL1 THRU WL4 AND PART NUMBERS.

ROADWAY AND PARKING LOT LIGHTING

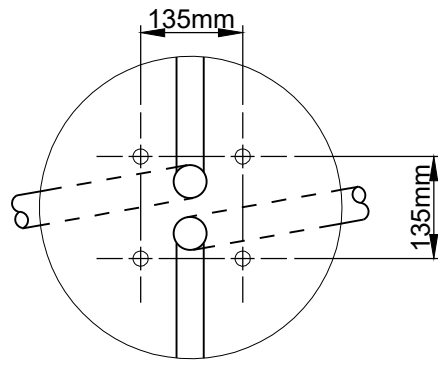
- SAME AS ABOVE EXCEPT:
- POLE: #4RH-20-2.5-3-CC-DP VALMONT 20" ROUND TAPERED ALUMINUM POLE
 - #356 ALLOY ALUMINUM SHOE BASE
 - #DT12AC-DP VALMONT BASE COVER
 - ACCESSORIES LESS ANCHOR BOLTS
 - LIGHT HEAD: COOPER LIGHTING INVUE MSA MESA AREA LUMINAIRE
 - REFER TO TYPE RL1 THRU RL5 FIXTURE HEAD UNIT TYPES FOR ALL ADDITIONAL REFERENCE INFORMATION.

NOTES:

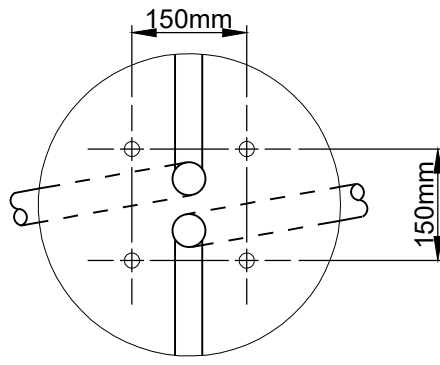
1. CABLE TERMINATIONS TO BE BURNDY UNITAP INSULATED MULTIPLE CONNECTOR PART No. BIT-2/0 OR APPROVED EQUAL.
2. FUSE PROTECTION TO BE AN E26 MEDIUM BASE RUBBER PIGTAIL LAMP HOLDER c/w BUSS T15 HOUSEHOLD FUSE.
3. * DENOTES 1550mm FOR 6M POLE AND 1250mm FOR 3M/3.66M POLE. WHERE THE BASE TOP IS 600mm ABOVE GRADE, THE BASE LENGTHS SHALL BE 2100mm AND 1800mm RESPECTIVELY.



ELEVATION

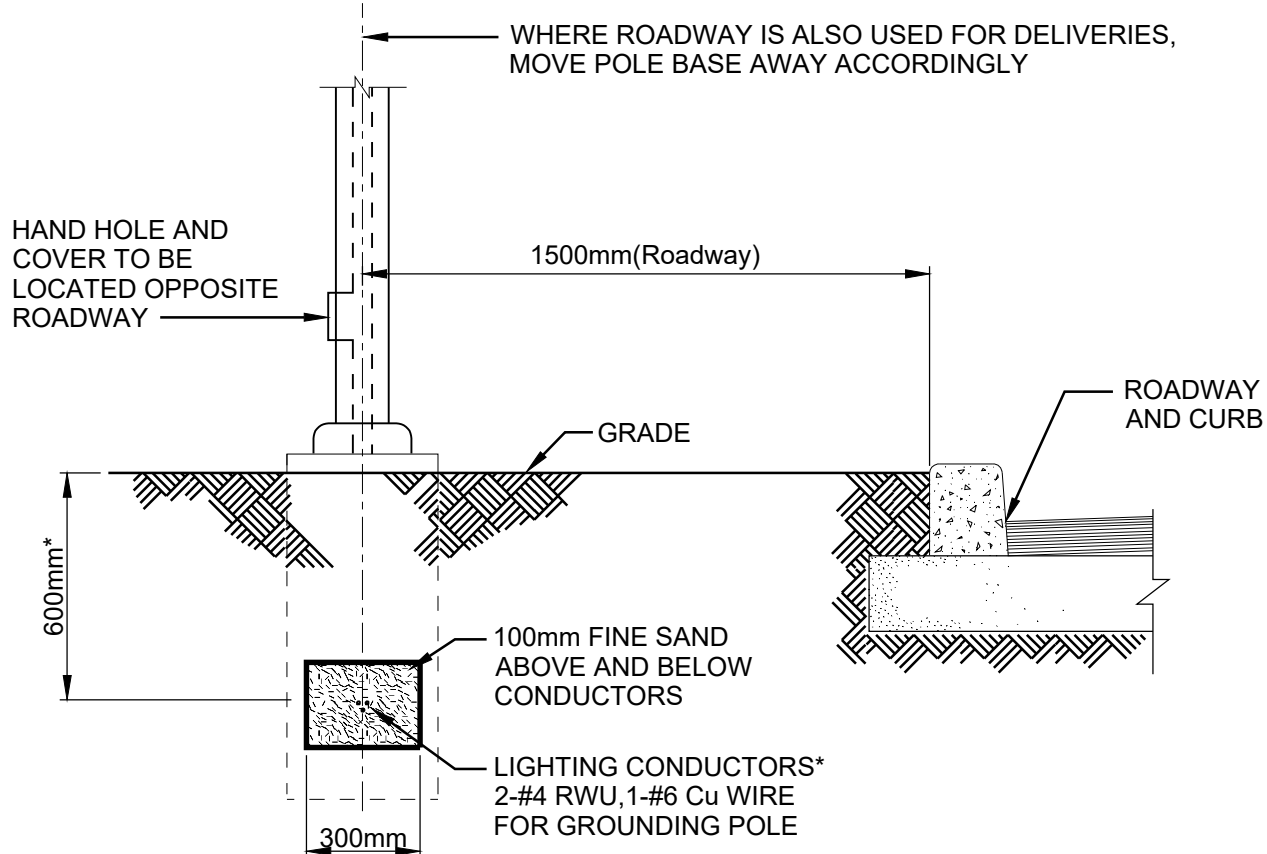


3M/3.66M POLE BASE
PLAN VIEW



6M POLE BASE
PLAN VIEW

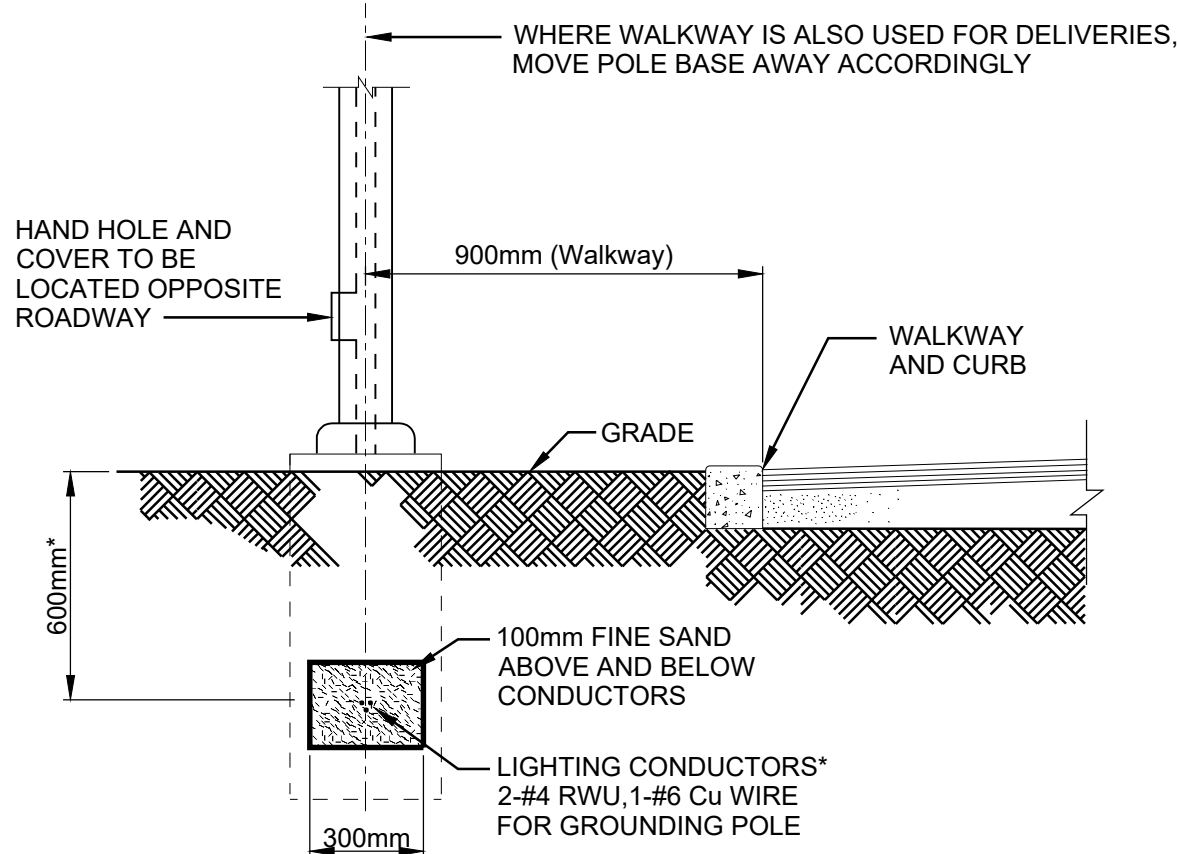
3 LIGHTING POLE BASES
PLAN VIEWS & ELEVATION



NOTES:

- * CONDUCTORS TO BE 900mm BELOW GRADE WHEN SUBJECT TO VEHICULAR TRAFFIC (INCLUDING ROADWAYS, DRIVE AISLES, PARKING AREAS, ETC.).
- THE UNDERGROUND CABLE INSTALLATION SHALL BE PROVIDED WITH A SUITABLE MARKING TAPE BURIED APPROXIMATELY HALFWAY BETWEEN THE INSTALLATION AND GRADE LEVEL.

4 ROADWAY LIGHTING
CURB DISTANCE & TRENCH SECTION



NOTES:

- * CONDUCTORS TO BE 900mm BELOW GRADE WHEN SUBJECT TO VEHICULAR TRAFFIC (INCLUDING ROADWAYS, DRIVE AISLES, PARKING AREAS, ETC.).
- THE UNDERGROUND CABLE INSTALLATION SHALL BE PROVIDED WITH A SUITABLE MARKING TAPE BURIED APPROXIMATELY HALFWAY BETWEEN THE INSTALLATION AND GRADE LEVEL.

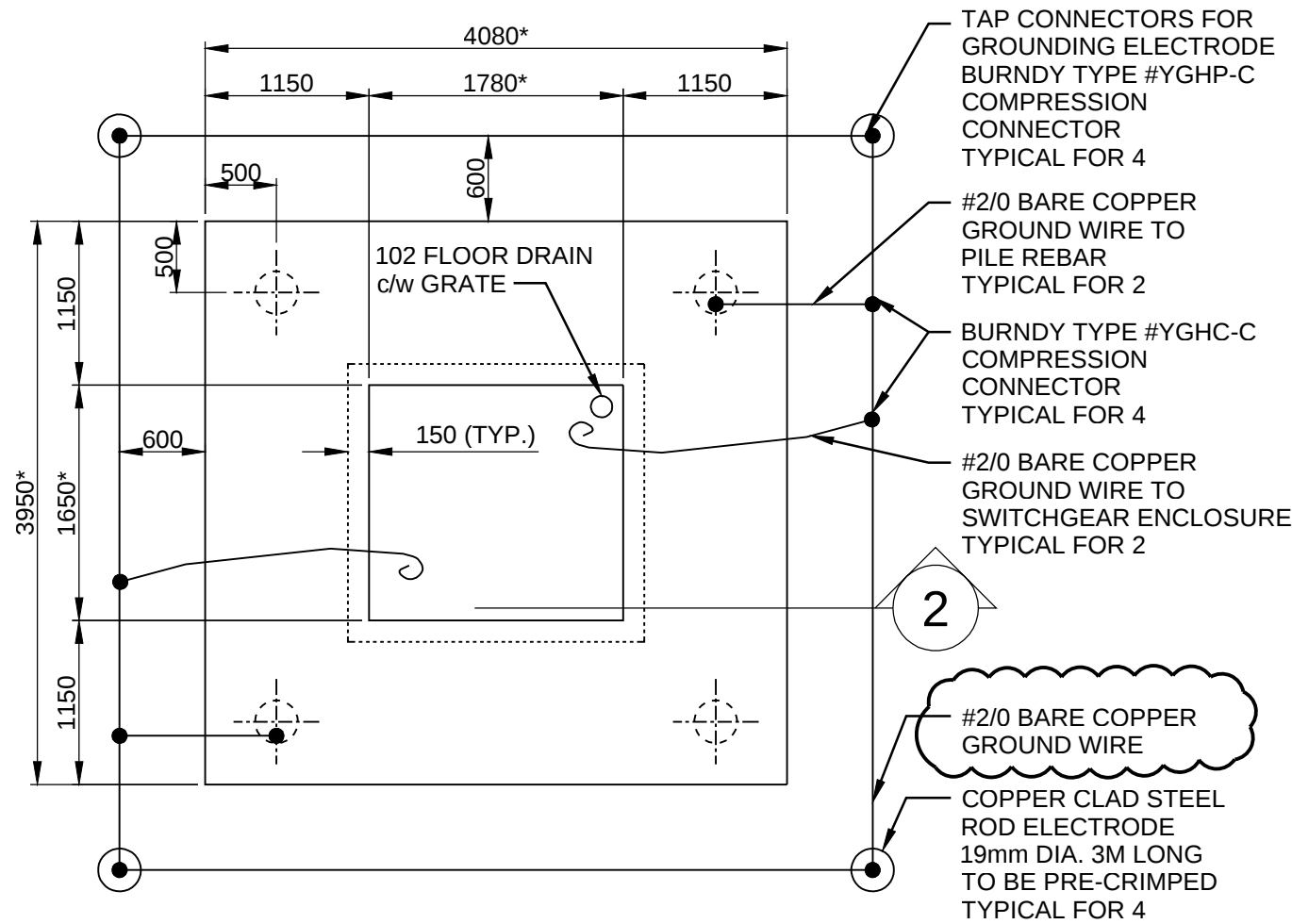
5 WALKWAY LIGHTING
CURB DISTANCE & TRENCH SECTION

NEW LED LIGHT FIXTURE SCHEDULE						
TYPE #	DESCRIPTION	ELECTRICAL				
		WATTS	AMPS	LUMENS	DISTRIBUTION	FINISH
WL1	INVUE MSA MESA #MSA-SA1C-830-U-T2-DP-LCF	59	0.51*	5,697	TYPE 2	DARK PLATINUM
WL2	INVUE MSA MESA #MSA-SA1C-830-U-SL2-DP-L-CF	59	0.51*	5,674	TYPE 2 w/SPILL CONTROL	DARK PLATINUM
WL3	INVUE MSA MESA #MSA-SA1C-830-U-SL4-DP-L-CF	59	0.51*	6,109	TYPE 4 w/SPILL CONTROL	DARK PLATINUM
WL4	INVUE MSA MESA #MSA-SA1C-830-U-SWQ-DP-LCF	59	0.51*	6,127	TYPE 5 SQUARE WIDE	DARK PLATINUM
RL1	INVUE MSA MESA #MSA-SA4C-830-U-T2-DP-LCF	225	2.03*	21,856	TYPE 2	DARK PLATINUM
RL2	INVUE MSA MESA #MSA-SA4C-830-U-SL2-DP-L-CF	225	2.03*	21,769	TYPE 2 w/SPILL CONTROL	DARK PLATINUM
RL3	INVUE MSA MESA #MSA-SA4C-830-U-SL3-DP-L-CF	225	2.03*	21,502	TYPE 3 w/SPILL CONTROL	DARK PLATINUM
RL4	INVUE MSA MESA #MSA-SA4C-830-U-SL4-DP-L-CF-HSS	225	2.03*	21,345	TYPE 4 w/SPILL CONTROL	DARK PLATINUM
RL5	INVUE MSA MESA #MSA-SA4C-830-U-SWQ-DP-LCF	225	2.03*	23,507	TYPE 5 SQUARE WIDE	DARK PLATINUM

NOTES:

1. ALL MSA LIGHT FIXTURES INDICATED USE 80 CRI AND 3000K COLOR TEMPERATURE SPECIFICATIONS UNLESS STATED OTHERWISE.
2. EXISTING AND NEW MSA LIGHT FIXTURES USED IN COLLEGE QUARTER ARE FINISHED WITH BLACK COLOUR. DARK PLATINUM COLOUR IS ASSOCIATED WITH ANY NEW FIXTURES USED ON MAIN CAMPUS PROPERTY.
3. LED DRIVER OPERATING VOLTAGES OF MOST LIGHT FIXTURES ON MAIN CAMPUS ARE UNIVERSAL (120-277V) UNLESS INDICATED OTHERWISE IN PART NUMBER. WHERE SUPPLY VOLTAGE IS 347V, THE "U" PREFIX IN THE PART NUMBER IS REPLACED BY THE "9" PREFIX.
4. CONFIRM WITH OWNER ON AREAS WHERE LIGHTING HEAD UNITS MAY USE INTEGRATED PHOTOCCELL CONTROL. THE RELATED PART NUMBERS WILL BE IDENTIFIED WITH THE "PC" PREFIX.
5. ELECTRICAL AMPS (*) IS DETERMINED BASED ON A FIXTURE WITH THE 1.0A LED DRIVER OPTION. USE OF THE 1.2A DRIVER OPTION RISKS REDUCTION OF LED ARRAY LIFESPAN AND IS NOT ACCEPTABLE FOR USE ON CAMPUS.
6. PHOTOMETRIC STUDY REQUIRED FOR ALL EXTERIOR POLE-MOUNTED LIGHTING TO VERIFY ILLUMINATION LEVELS, UNIFORMITY, GLARE, AND SPACING.

A2 (420x594 mm) W:\PMO\PMO - Public\Electrical Library\Details\Revised Details\E6 - Switching Cubicle Details(08JAN2026).dwg : Thursday, January 8, 2026 2:32:32 PM : DWG To PDF.pc3



NOTES:

- * REFER TO SWITCHING CUBICLE SHOP DRAWINGS FOR EXACT DIMENSIONS.
- 1. REFER TO ELECTRICAL TRENCH DRAWINGS FOR DETAILS OF DUCT BANKS ENTERING PIT.

1 SWITCHING CUBICLE BASE

PLAN VIEW

GENERAL NOTES

- Contractor to confirm all existing conditions and site measurements.
- Report any discrepancies to consultant before proceeding.
- Confirm size and location of openings with electrical contractors.
- Report any discrepancies to consultant before proceeding.

Cast-in-Place Concrete

- Perform cast-in-place concrete work in accordance with CAN/CSA-A23.1 - "Concrete Materials and Methods of Concrete Construction".
- Cement to CSA A5 - "Portland Cements" and aggregates to CAN/CSA- A23.1 -"Concrete Materials and Methods of Concrete Construction".
- For all concrete in contact with soil use Symbol 50 cement.
- Grout to be premixed non-shrink non-metallic grout with minimum strength at 3 days of 20 MPa and at 28 days of 40 MPa.
- Concrete to be in accordance with the following table:

Type Location	Strength f _c (MPa)	Cement Symbol	Class of Exposure	Aggreg. Max. (mm)	Slump (mm)	Total Air (%)
1. Piling	25	50	F-2	20	50 to 100	4 to 7
2. Reinforced Concrete	30	50	F-2	20	50 to 100	4 to 7

- Maximum free water/cement ratio to CAN/CSA-A23.1 tables 7, 8, and 9 for specified class of exposure.

Reinforcing Steel

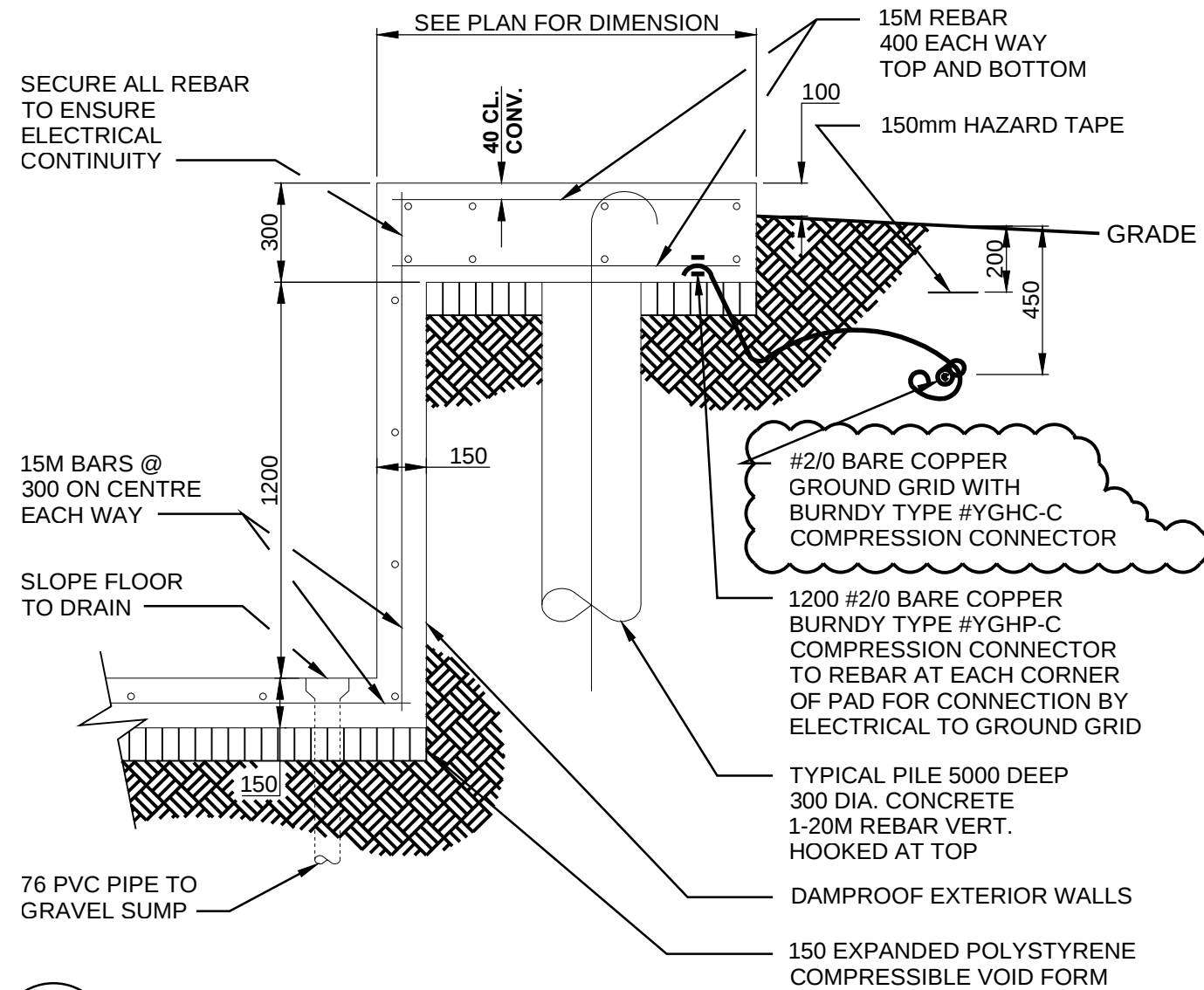
- To CSA Standard G.30.12, Grade 400, plain finish for all bars unless noted otherwise. Minimum splice for 10M bars to be 450mm. Minimum lap splice for all other bars to be 36 bar diameter or 700mm, whichever is greater.
- Detail concrete reinforcing steel in accordance with latest edition of ACI 315 "Standard Practice for Detailing Reinforced Concrete Structures".
- Perform concrete reinforcing work in accordance with CSA CAN3-A23.3-M77 - "Code for Design of Concrete Structures for Buildings".

Void Form

- 100mm thick decomposable cardboard honeycomb form on minimum 50mm sand screened.
- Place 6mm tempered hardboard over void form for full area formed.
- Protect sides of void form with 19 x 235 preservative treated sideboards.
- Cover with 0.15mm polyethylene.

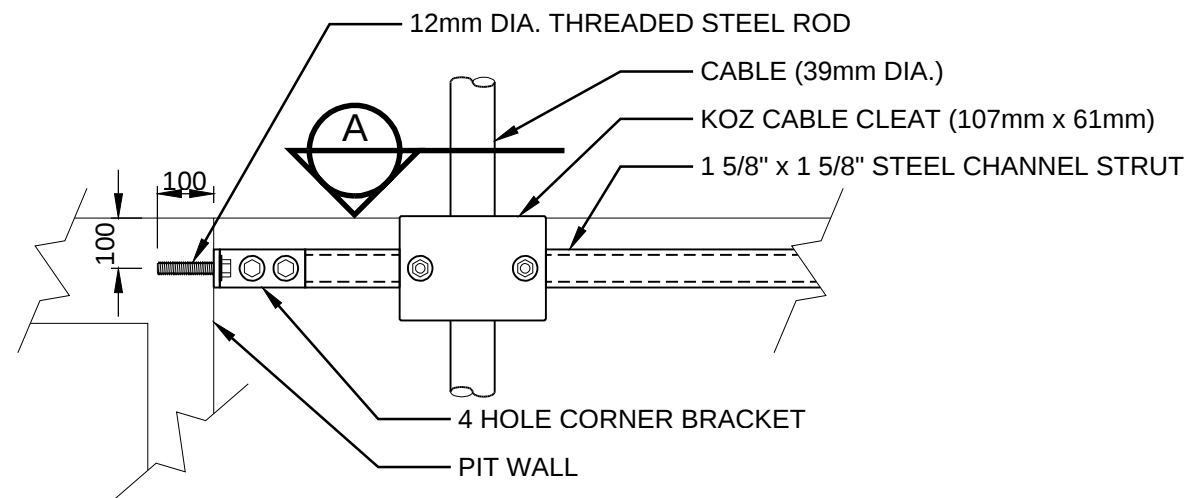
Backfill

- Backfill to be well graded granular material compacted to 95% Standard Proctor.
- All other backfill to be insitu material compacted to 90% Standard Proctor.

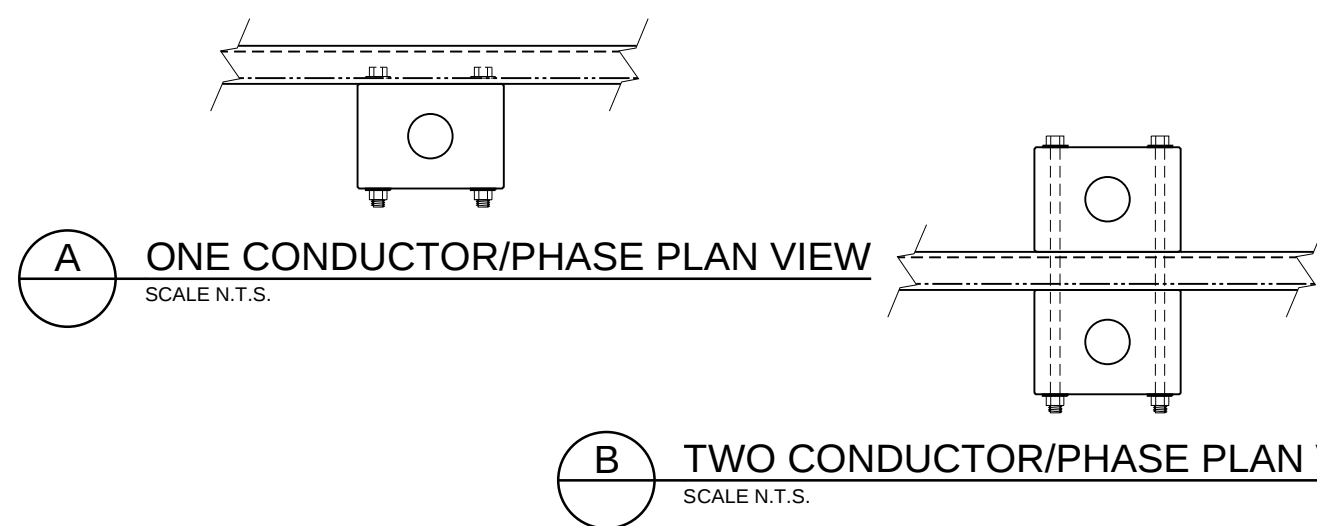


2 SWITCHING CUBICLE BASE

SECTION VIEW



CABLE SUPPORT DETAIL - ELEVATION



NOTES:

- IN PMH-10 SWITCHES AND PMH-19 COMPARTMENTS 1 & 2, MOUNT FRONT OF STRUT 420mm BACK FROM EQUIPMENT FRONT.
- IN PMH-19, COMPARTMENTS 3 (FUSE) & 4, MOUNT FRONT OF STRUT 340mm BACK FROM EQUIPMENT FRONT.
- IN TRANSFORMERS, MOUNT SO CABLES ARE AS VERTICAL AS POSSIBLE.
- GROUND STRUT WITH #6 Cu TO SYSTEM GROUND.

Legend

For Reference

0	ISSUED FOR REFERENCE	DMB	08-JAN-2026
Rev.	Description	Appd.	Date

Permits / Seals

Project

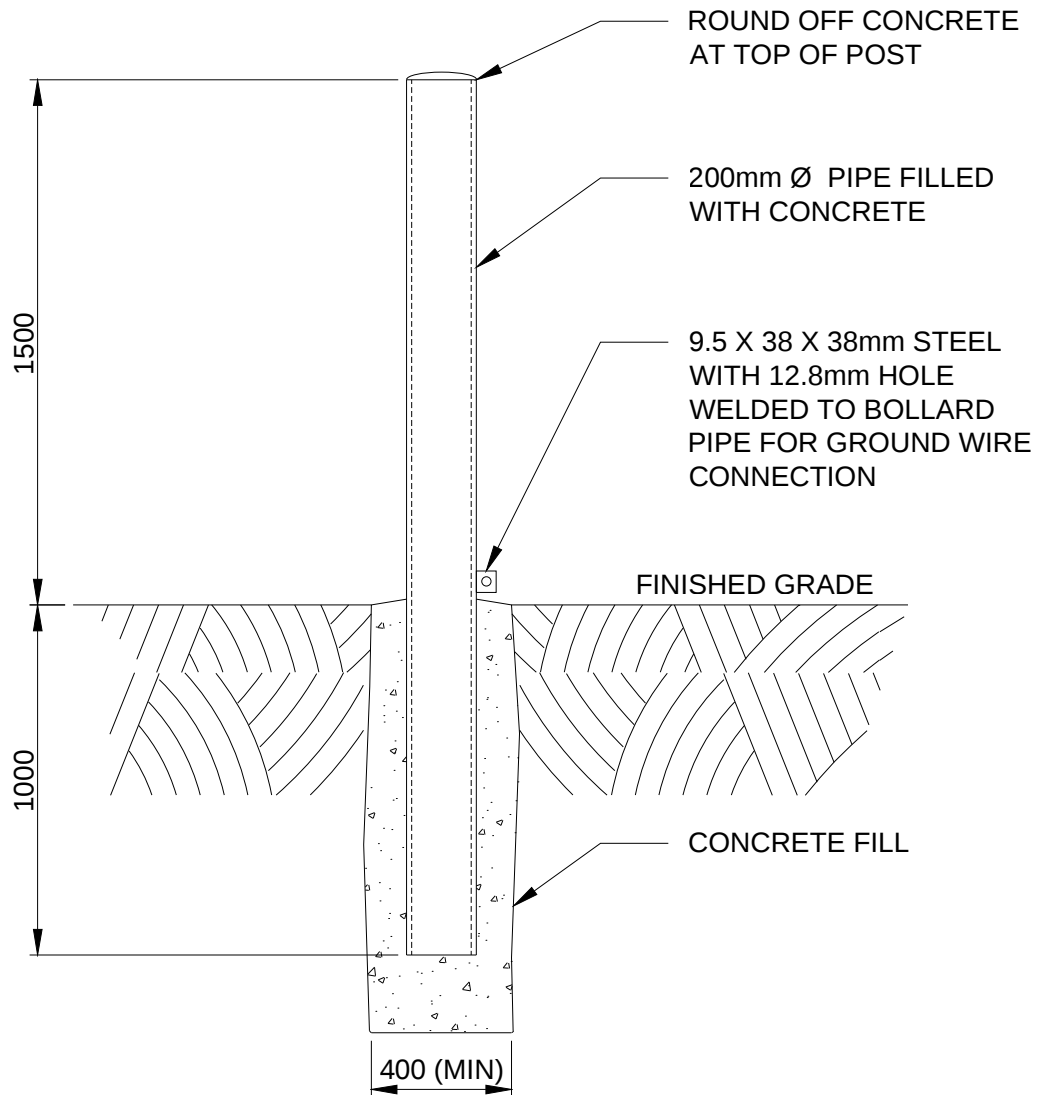
ELECTRICAL DETAILS

HIGH VOLTAGE SWITCHING CUBICLE

Title

BASE PLAN, SECTION AND NOTES

Dwn. D. DUBOWSKI	Chkd. G. POOLE	Dsgn. D. DUBOWSKI
Project No.	Scale As Noted	Date 17-SEP-2025
Drawing No. E6	Sheet 1 OF 1	Revision 0



1 BOLLARD AND BASE

ELEVATION VIEW

NOTES:

1. THIS BOLLARD INSTALLATION IS TO BE USED WHEREVER ELECTRICAL EQUIPMENT IS INSTALLED NEAR ANY POSSIBLE VEHICLE ACTIVITY.
2. REFER TO ELECTRICAL EQUIPMENT PLAN OR SITE PLAN FOR ACTUAL BOLLARD LOCATIONS.

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Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN

DATE 14-NOV-25

SCALE N.T.S.

ELECTRICAL DETAILS

BOLLARD AND BASE
ELEVATION VIEW



DRAWN BY D. DUBOWSKI

CHECKED BY K. LEEDAHL

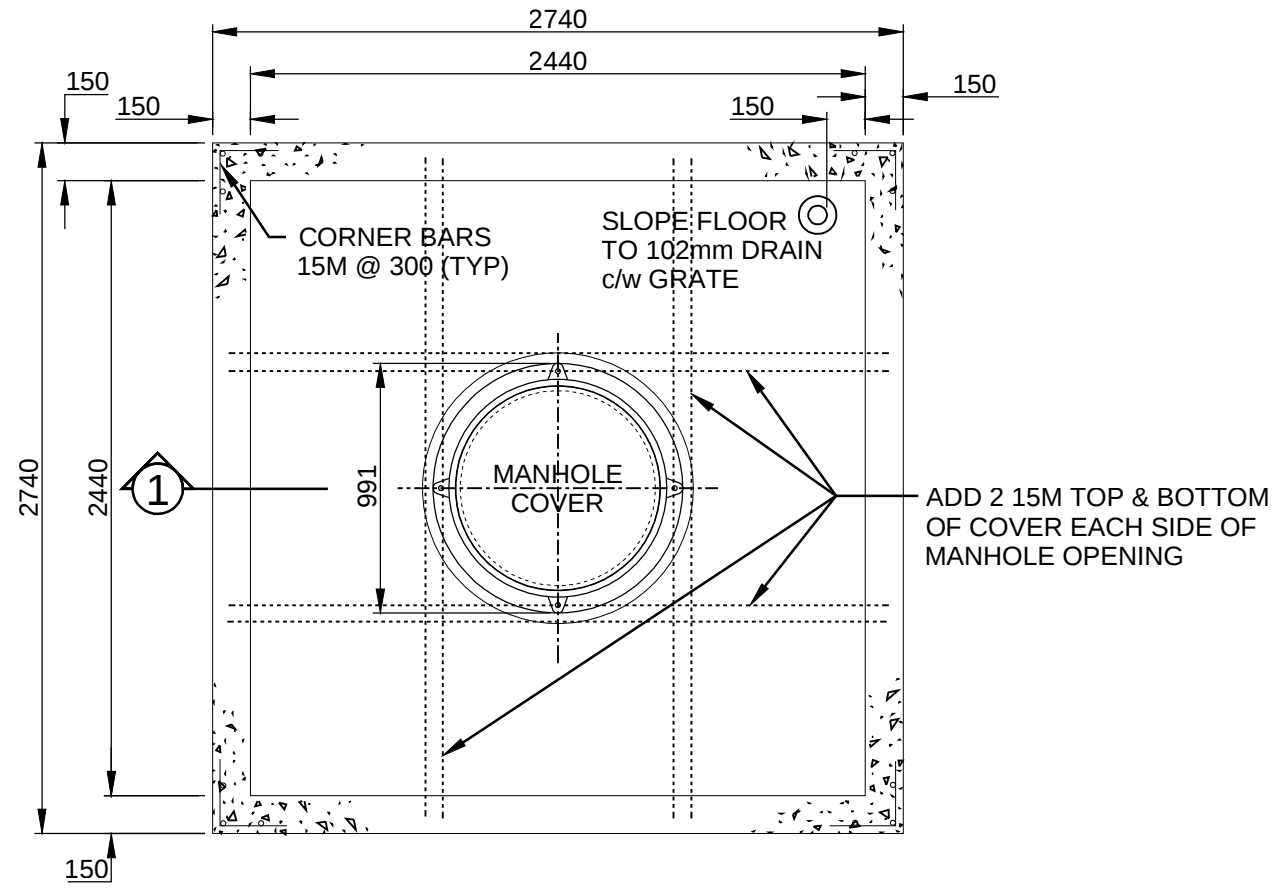
APPROVED BY D. BALIAD

E

DRAWING NO.

7

A2 (420x594 mm) W:\PMO\PMO_Public\Electrical Library\Details\Revised Details\E8 - Electrical Manhole Details(08JAN2026).dwg , Thursday, January 8, 2026 5:01:02 PM - DWG To PDF.pc3

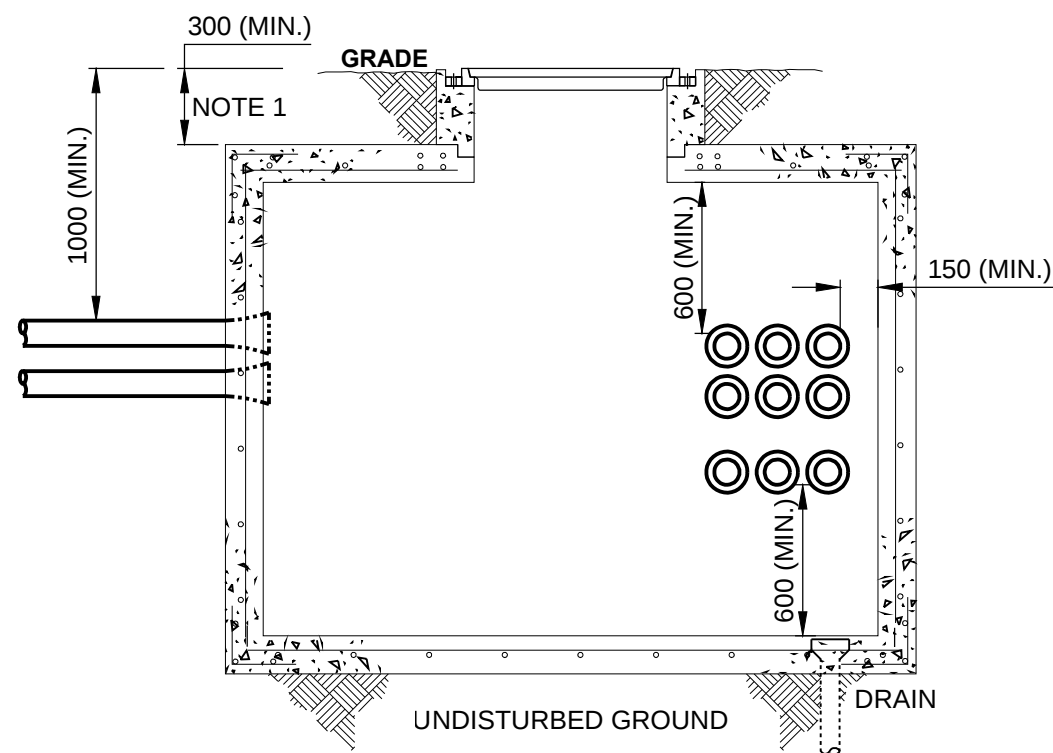


NOTES:

1. REFER TO ELECTRICAL DRAWINGS FOR DUCT CONFIGURATION(S), LOCATION(S) AND MANHOLE COVER LOCATION.
2. COVER & FRAME BLANCHARD FOUNDRY No. 6006.

1 ELECTRICAL MANHOLE

PLAN VIEW

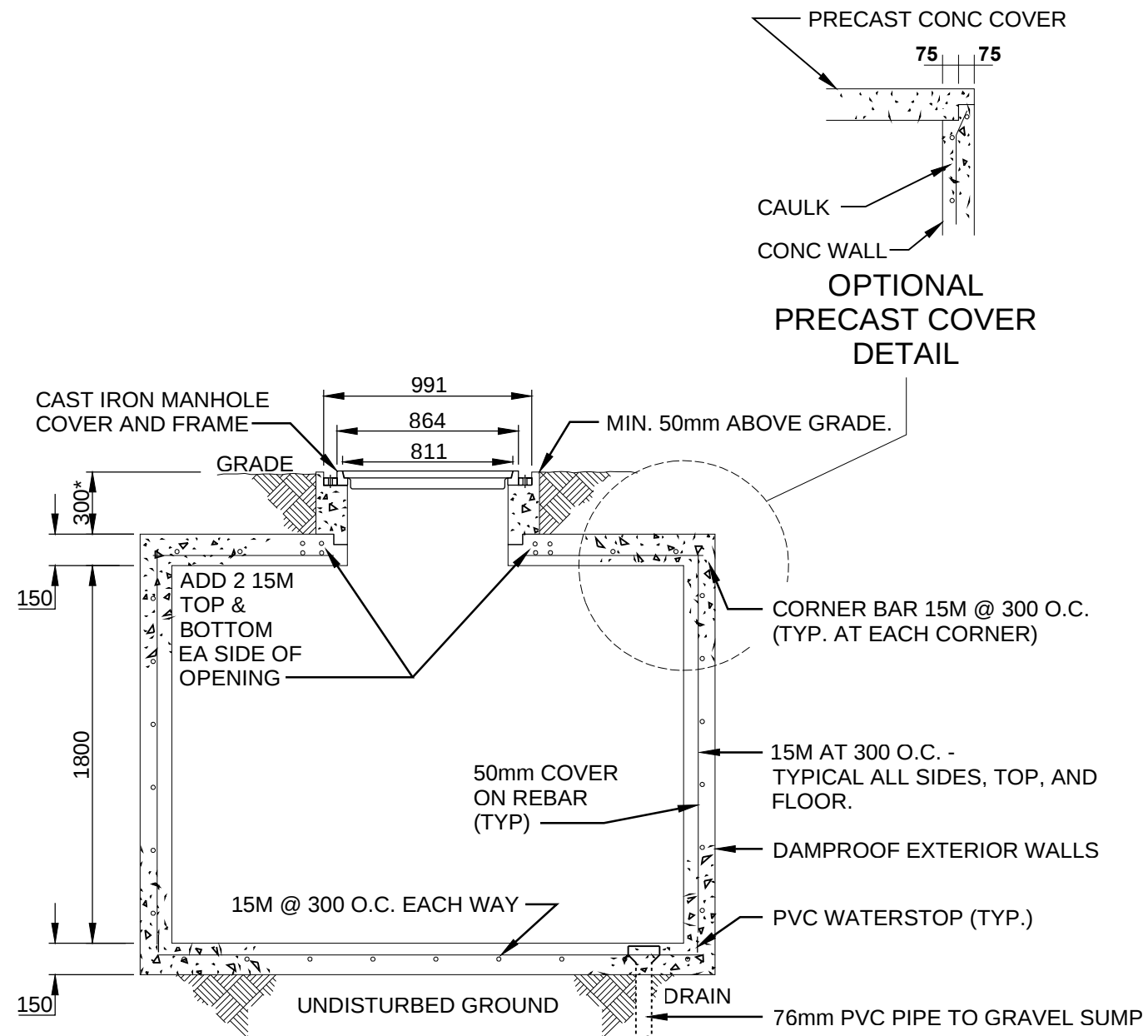


NOTES:

1. MINIMUM DIMENSION SHOWN, REFER TO ELECTRICAL DUCT PROFILE.
2. LOCATE MANHOLE COVER SO LADDER ACCESS IS UNOBSTRUCTED BY HIGH VOLTAGE CABLE.

2 ELECTRICAL MANHOLE DUCTS

SECTION VIEW



NOTES:

- * MINIMUM DIMENSION, REFER TO ELECTRICAL DRAWINGS.
1. REFER TO ELECTRICAL DRAWINGS FOR DUCT CONFIGURATION(S), LOCATION(S) AND MANHOLE COVER LOCATION.
 2. COVER & FRAME BLANCHARD FOUNDRY No. 6006.

1 ELECTRICAL MANHOLE

SECTION VIEW

For Reference

Legend

0	ISSUED FOR REFERENCE	DMB	08-JAN-2026
Rev.	Description	Appd.	Date

Permits / Seals

Project

ELECTRICAL DETAILS

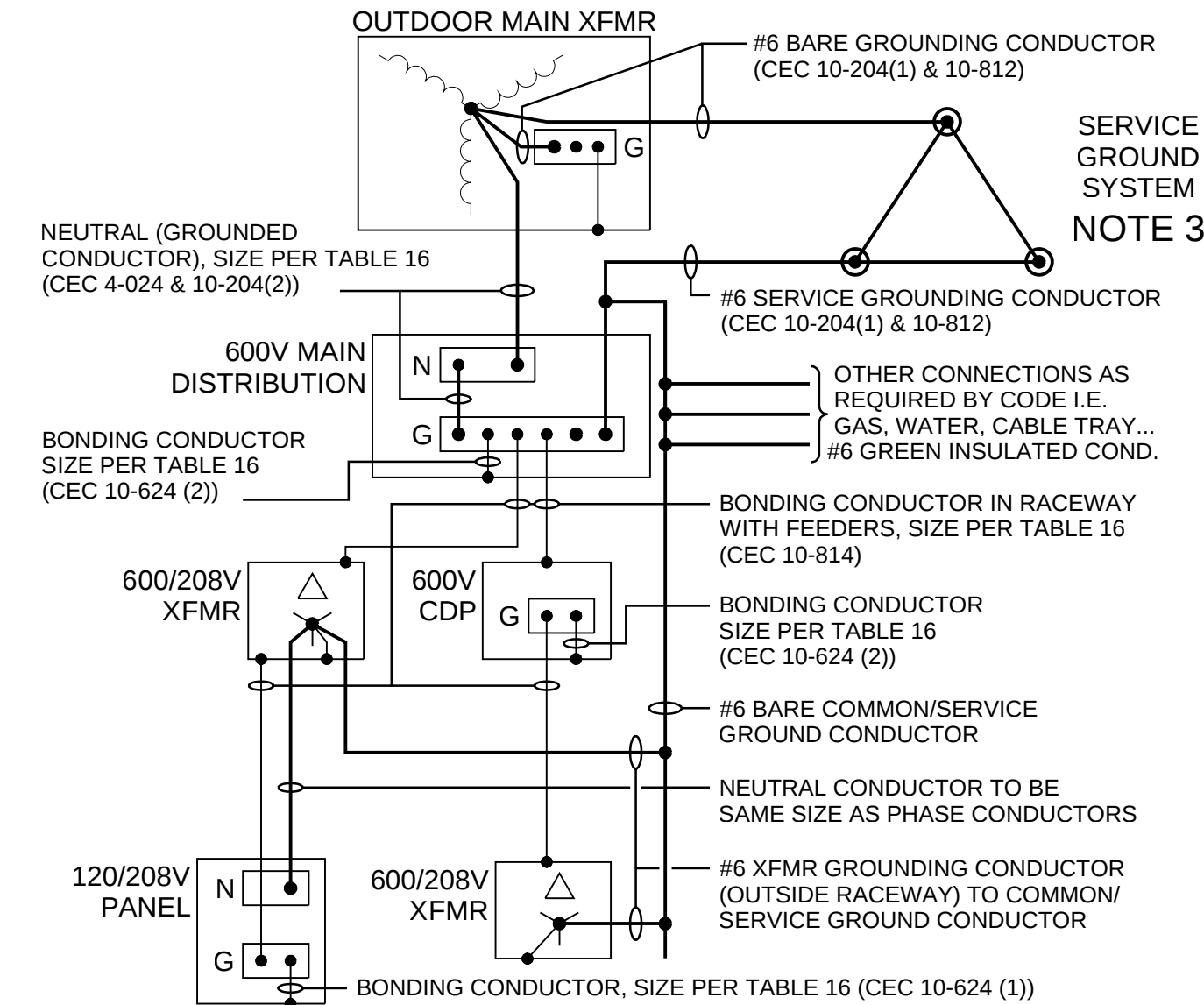
ELECTRICAL MANHOLE

Title

PLAN VIEW, SECTION VIEW AND DUCT DETAILS

Dwn. D. DUBOWSKI	Chkd. G. POOLE	Dsgn. D. DUBOWSKI
Project No.	Scale As Noted	Date 17-SEP-2025
UofS Drawing No.	Drawing No. E8	Sheet 1 OF 1
Revision 0		

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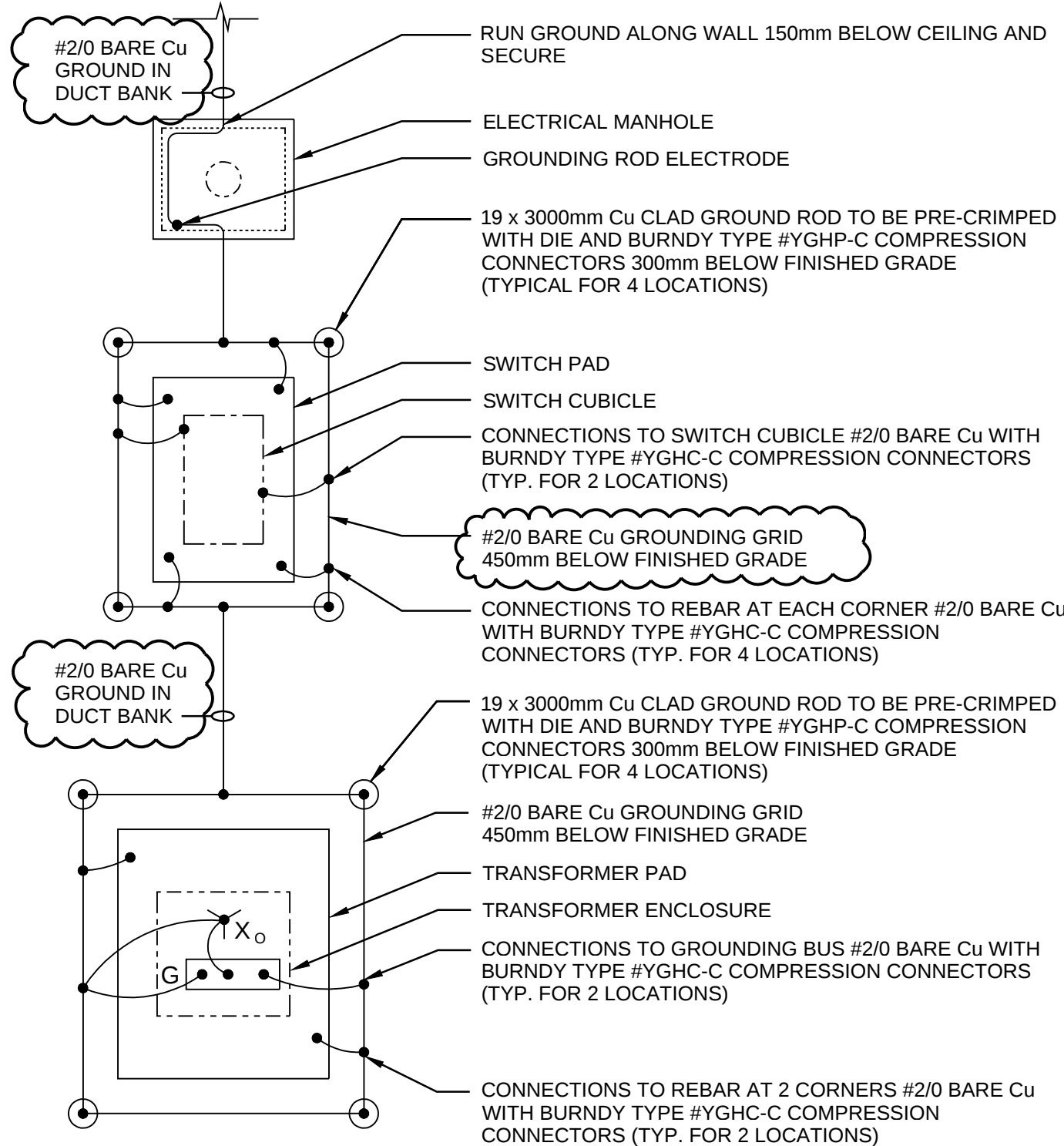
NOTES:

- TABLE 16 & RULES REFERENCED ARE FOUND IN THE CANADIAN ELECTRICAL CODE. REFER ALSO TO CEC SASKATCHEWAN INTERPRETATIONS WHEN SIZING BONDING AND GROUNDING CONDUCTORS.
- ALL CONNECTIONS SHALL USE COMPRESSION CONNECTORS.
- LOCATE GROUND SYSTEM OUTSIDE BUILDING AS NEAR AS POSSIBLE TO MAIN DISTRIBUTION. WHERE THE TRANSFORMER IS IMMEDIATELY ADJACENT TO THE MAIN DISTRIBUTION, THE GROUND GRID AROUND THE EQUIPMENT PAD SHALL SUFFICE AS THE GROUND SYSTEM. WHERE THE TRANSFORMER IS NOT IMMEDIATELY ADJACENT, A SEPARATE SERVICE GROUND SYSTEM SHALL BE INSTALLED.

1

BUILDING DISTRIBUTION SYSTEM

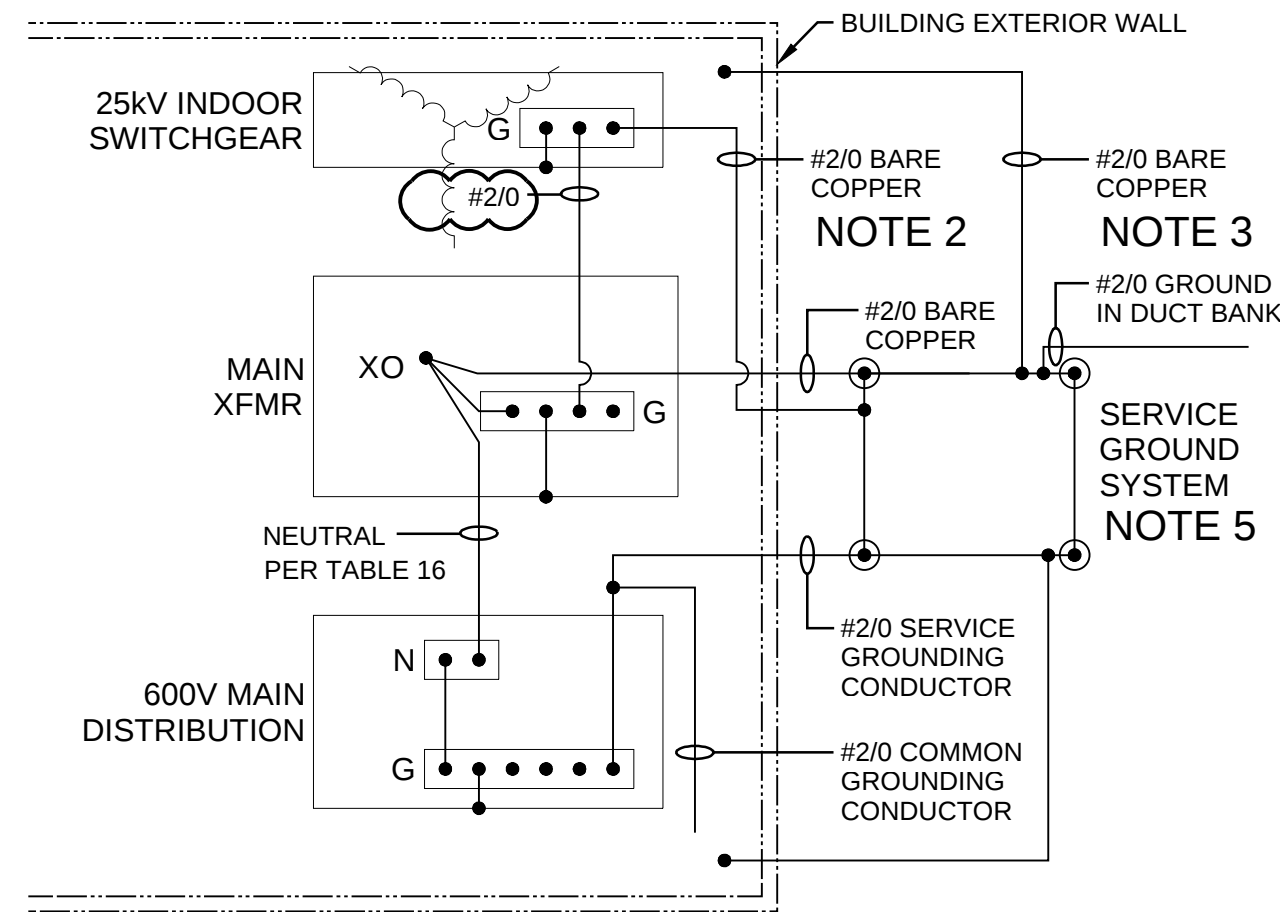
BONDING/GROUNDING DETAIL



2

OUTDOOR HV DISTRIBUTION SYSTEM

BONDING/GROUNDING DETAIL



NOTES:

- TABLES 16 & TABLE 17 ARE FOUND IN THE CANADIAN ELECTRICAL CODE.
- RUN INDEPENDANT FROM XO. PROVIDE MECHANICAL PROTECTION TO EXTERIOR OF BUILDING. WHERE 25KV SWITCHGEAR EXCEEDS 2M IN LENGTH, PROVIDE A CONNECTION AT EACH END DIRECTLY TO GROUND GRID ELECTRODES.
- TYPICALLY RUN 2 INDEPENDANTLY. CONNECT TO ELECTRICALLY CONTINUOUS REBAR/MESH IN CONCRETE.
- ALL CONNECTIONS SHALL USE COMPRESSION CONNECTORS.
- LOCATE GROUND SYSTEM OUTSIDE OF BUILDING AS NEAR AS POSSIBLE TO ELECTRICAL ROOM.

3

INDOOR HV DISTRIBUTION SYSTEM

BONDING/GROUNDING DETAIL



UNIVERSITY OF
SASKATCHEWAN

Planning, Design and Construction
University of Saskatchewan
University Services Building
110 Maintenance Road
Saskatoon SK
Canada S7N 5C5

Legend

0	ISSUED FOR REFERENCE	LJD	03-FEB-2026
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Rev.	Description	Appd.	Date
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Permits / Seals

Project

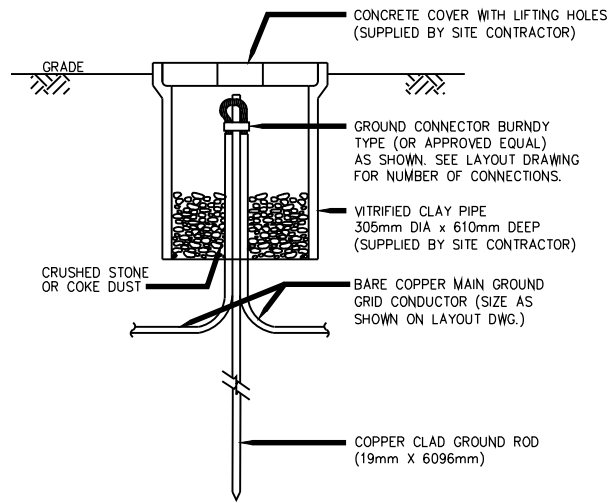
ELECTRICAL DETAILS
BONDING/GROUNDING SYSTEMS

Title

**BUILDING DISTRIBUTION,
OUTDOOR HV DISTRIBUTION, AND
INDOOR HV DISTRIBUTION**

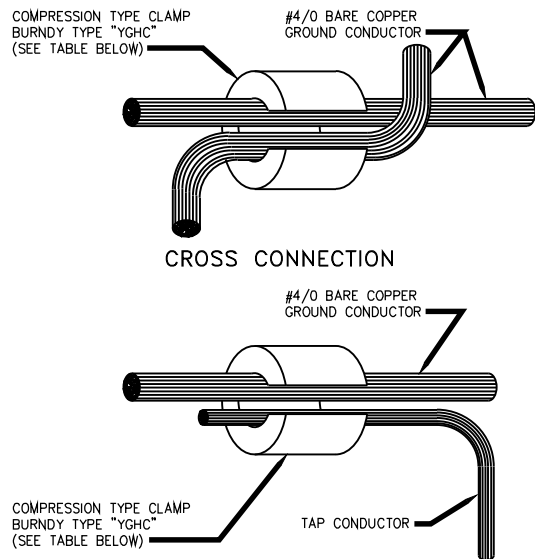
Dwn. D. DUBOWSKI	Chkd. D. BALIAD	Dsgn. K. LEEDAHL
Project No.		Scale N/A
UofS Drawing No.		Date 16-PCT-2025
Drawing No. E9	Sheet 1 OF 1	Revision 0

For Reference



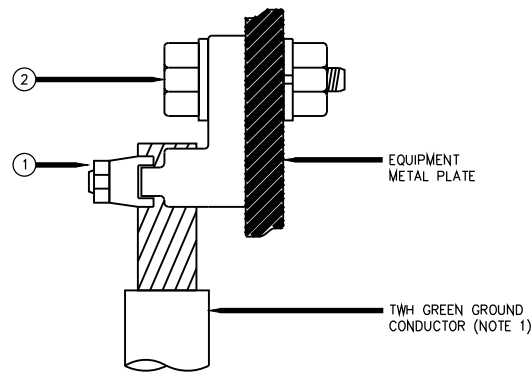
BURNDY CONNECTOR TO 19 mm ROD		
CONDUCTOR SIZE	FOR ONE CONDUCTOR	FOR 2 OR 3 CONDUCTORS
#4 TO #2/0 AWG	GAR 6426	GK 6426
#2/0 TO #250 MCM	GAR 6429	GK 6429

G1 GROUND WELL ASSEMBLY
N.T.S.



COMPRESSION TAP CONNECTOR		
MAIN GND GRID	TAP COND	CATALOGUE NUMBER
#4/0	#4/0	BURNDY CAT #YGH29C29 OR APPROVED EQUAL
#4/0	#2/0	BURNDY CAT #YGH29C26 OR APPROVED EQUAL
#4/0	#2	BURNDY CAT #YGH29C26 OR APPROVED EQUAL

G2 GROUND CONN. TO MAIN GROUND GRID
N.T.S.

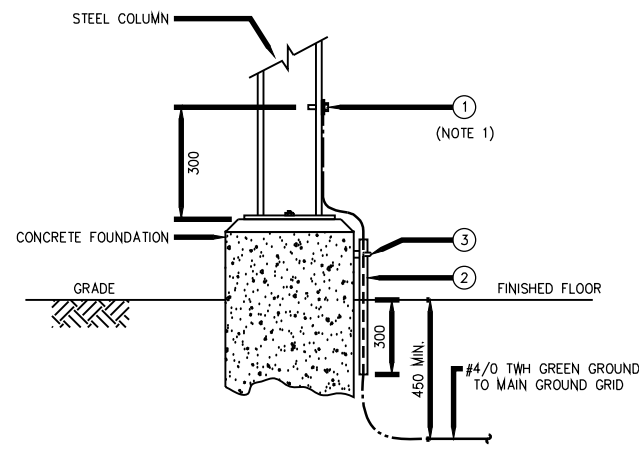


ITEM	QTY	DESCRIPTION
1	1 EA	GROUNDING CABLE CONNECTOR - SEE TABLE BELOW
2	1 EA	DURILUM BOLT, 9mm X 16, c/w DURILUM FLAT WASHER, DURILUM LOCK WASHER AND DURILUM HEXAGON NUT

TABLE	
CONDUCTOR SIZE	CATALOGUE NUMBER
#8 - #4 AWG	BURNDY CAT #QA4C-B OR APPROVED EQUAL
#4 - #1 AWG	BURNDY CAT #QA1C-B OR APPROVED EQUAL
#1/0 - #2/0 AWG	BURNDY CAT #QA2B-B OR APPROVED EQUAL

NOTES:
1) FOR CONDUCTOR SIZE REFER TO LAYOUT DRAWING.

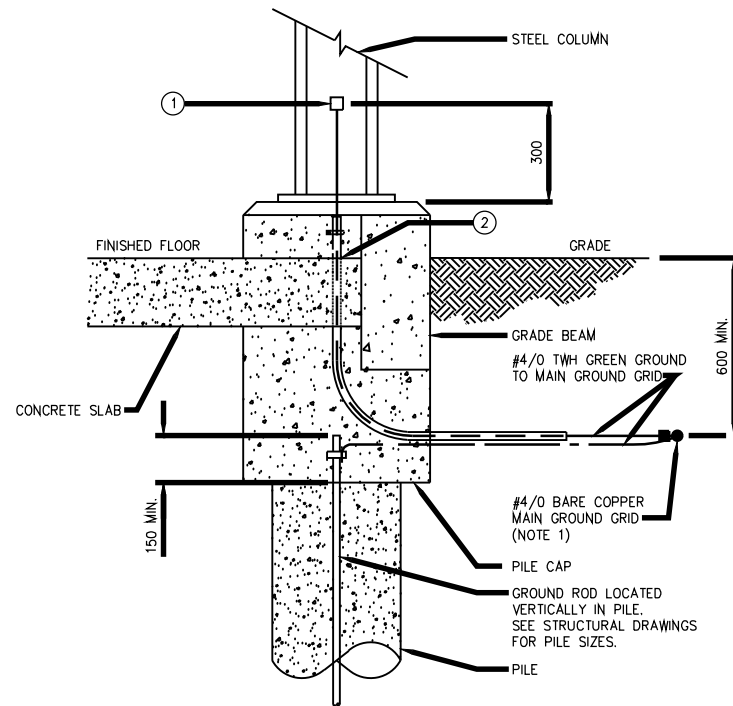
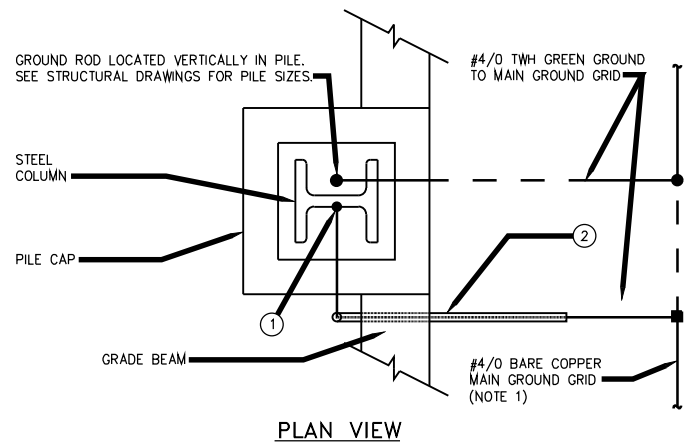
G3 GROUND CONN. TO ELECTRICAL EQUIPMENT
N.T.S.



ITEM	QTY	DESCRIPTION
1	1 EA	CONNECTOR, SERVIT POST, BURNDY CAT# KC26B1 OR APPROVED EQUAL
2	AS REQ'D	19mm PVC CONDUIT SLEEVE
3	AS REQ'D	19mm CONDUIT CLAMP, 1-HOLE

NOTES:
1) DRILL AND TAP WHERE APPROVED BY OWNER; OTHERWISE WELD BOLT TO COLUMN.

G4 STEEL COLUMN GROUNDING - INTERIOR GRID
N.T.S.

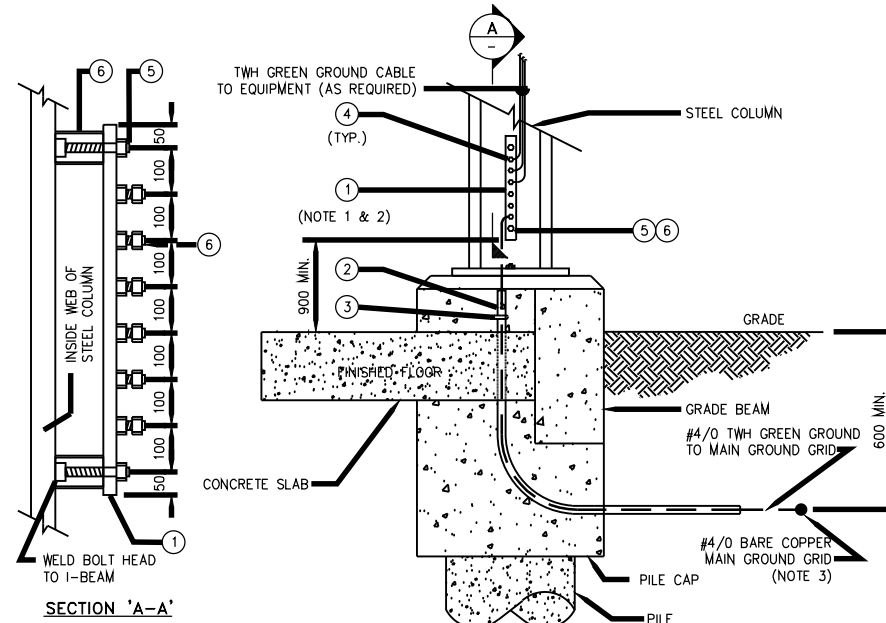


ELEVATION VIEW

ITEM	QTY	DESCRIPTION
1	1 EA	CONNECTOR, SERVIT POST, BURNDY CAT #KC26B1 OR APPROVED EQUAL
2	AS REQ'D	19mm PVC CONDUIT SLEEVE
3	AS REQ'D	19mm CONDUIT CLAMP, 1-HOLE

NOTES:
1) FOR CONNECTIONS REFER TO LAYOUT DRAWINGS.

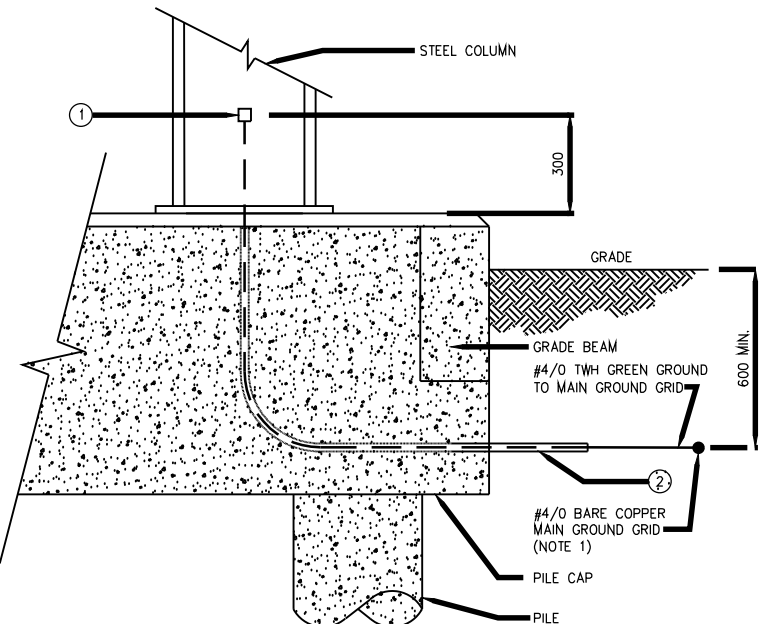
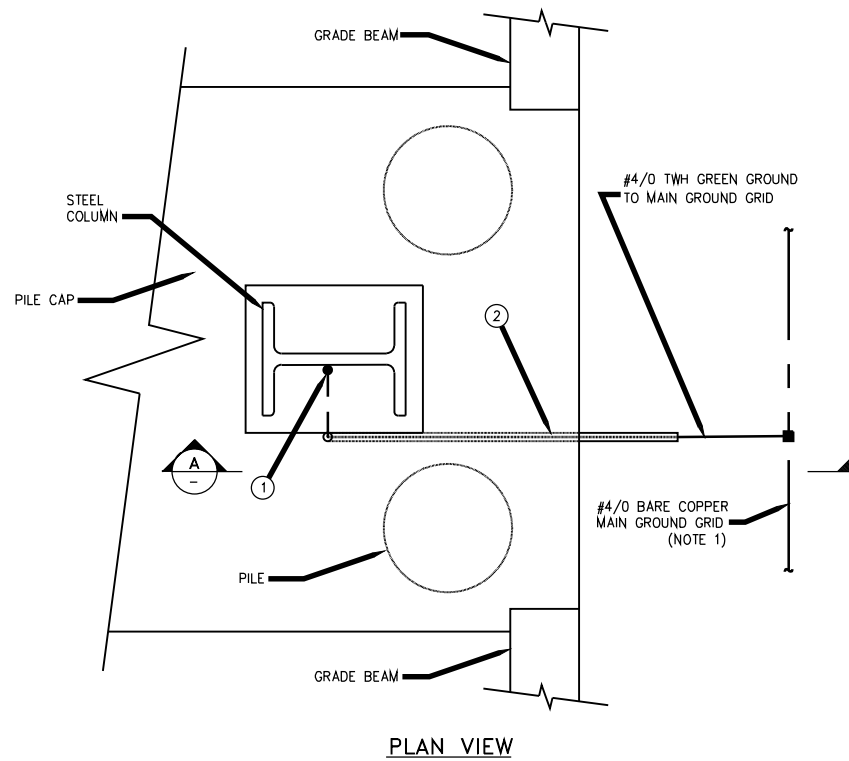
G5 EMBEDDED GROUND RODS IN PILES
N.T.S.



ITEM	QTY	DESCRIPTION
1	1 EA	FLAT TINNED COPPER BAR, 6mm THICK X 50mm WIDE X 800mm LONG
2	AS REQ'D	25mm PVC CONDUIT SLEEVE
3	AS REQ'D	25mm CONDUIT CLAMP, 1-HOLE
4	AS REQ'D	CONNECTOR, SERVIT POST, BURNDY TYPE KC OR K2C OR APPROVED EQUAL
5	2 EA	MACHINE BOLT, 12mm - 13 X 75mm LONG C/W NUT AND LOCK WASHER
6	2 EA	SPACER, R.S. CONDUIT, 25mm X 38mm LONG

NOTES:
1) USE SAME DETAIL WHEN TERMINATING MORE THAN ONE UG GROUNDING CONDUCTOR.
2) COPPER BAR TO BE DRILLED AND TAPPED TO SUIT SERVIT POST.
3) FOR CONNECTIONS REFER TO LAYOUT DRAWINGS.

G6 STEEL COLUMN MOUNTED GROUND BAR
N.T.S.

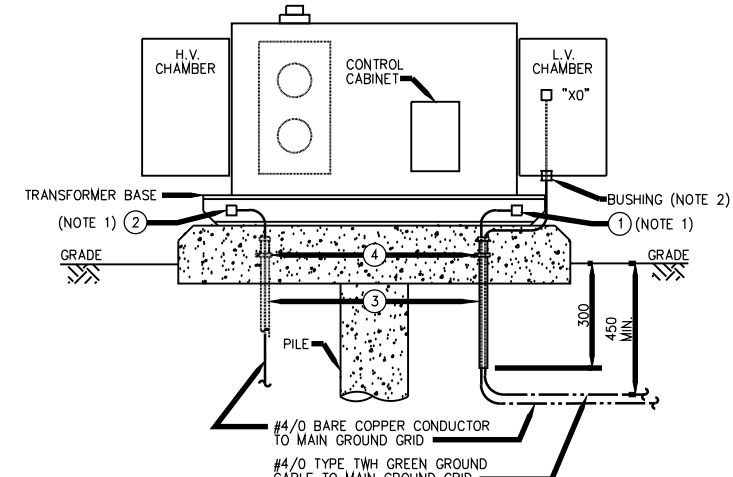


SECTION 'A-A'

ITEM	QTY	DESCRIPTION
1	1 EA	CONNECTOR, SERVIT POST, BURNDY CAT #KC26B1 OR APPROVED EQUAL
2	AS REQ'D	19mm PVC CONDUIT SLEEVE

NOTES:
1) FOR CONNECTIONS REFER TO LAYOUT DRAWINGS.

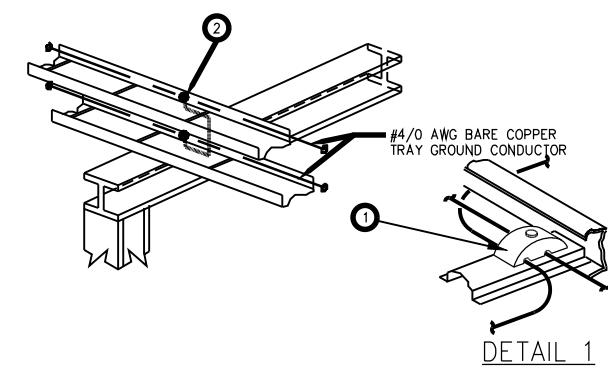
G7 STEEL COLUMN GROUNDING - EXTERIOR GRID
N.T.S.



ITEM	QTY	DESCRIPTION
1	1 EA	GROUND CONNECTOR, BURNDY CAT# GC2929 OR APPROVED EQUAL
2	1 EA	GROUND CONNECTOR, BURNDY CAT# GB29 OR APPROVED EQUAL
3	AS REQ'D	25mm PVC CONDUIT SLEEVE
4	AS REQ'D	25mm CONDUIT CLAMP, 1-HOLE

NOTES:
1) GROUND CONNECTORS TO BE MOUNTED DIAGONALLY OPPOSITE ON TRANSFORMER BASE (BY TRANSFORMER MANUFACTURER).
2) NEUTRAL GROUNDING CONDUCTOR SHALL BE TYPE TWH GREEN AND ISOLATED FROM TRANSFORMER TANK & BASE AND CONNECTED DIRECTLY TO THE MAIN GROUND GRID.

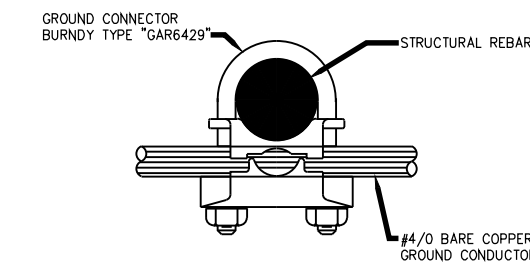
G8 XFMR BASE & NEUTRAL GROUNDING
N.T.S.



ITEM	QTY	DESCRIPTION
1	1	GROUND CONNECTOR, AS T&B #GCM29
2	1	GROUND CONNECTOR, AS T&B #GB29

NOTES:
CABLE TRAYS ARE TO BE GROUNDED AT 15C METER INTERVALS.

G9 CABLE TRAY GROUNDING
N.T.S.



G10 GROUND CONN. TO REBARS IN CONCRETE
N.T.S.

GENERAL NOTES:
1. STANDARD ELECTRICAL INSTALLATION DETAILS ARE PROVIDED TO INDICATE A CONCEPT ONLY AND ARE NOT INTENDED TO RESTRICT IMPROVED OR MORE COST EFFECTIVE ARRANGEMENTS FOR ANY PARTICULAR INSTALLATION.
2. ALL DIMENSIONS ARE IN MILLIMETERS.

For Reference

Legend

0	ISSUED FOR REFERENCE	DMB	08-JAN-2026
Rev.	Description	Appd.	Date

Permits / Seals

Project

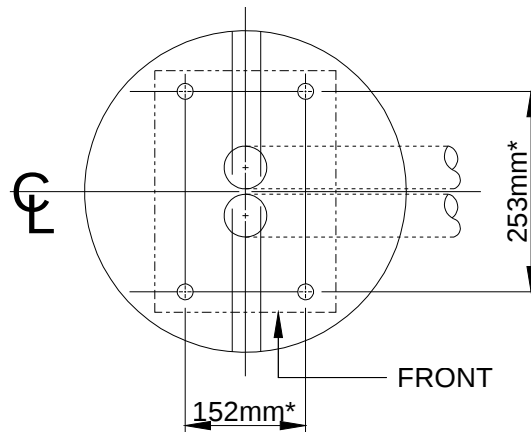
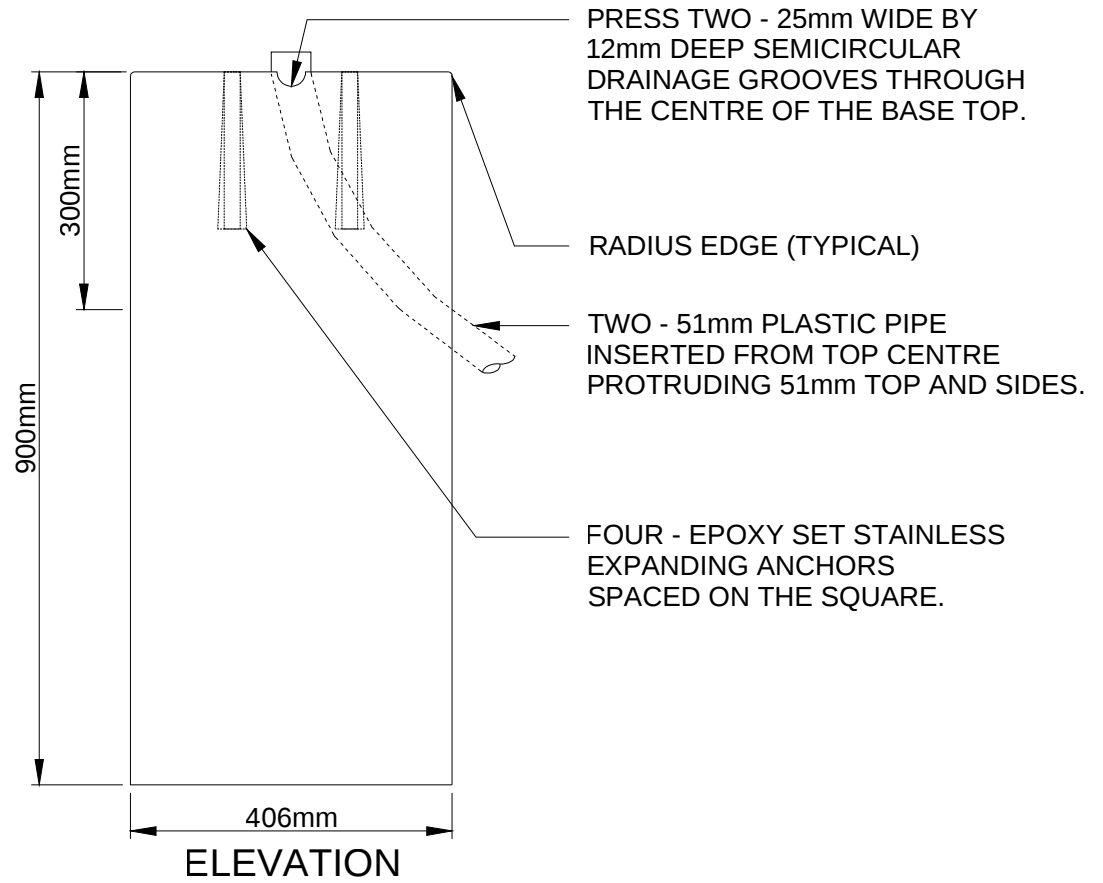
ELECTRICAL DETAILS

GENERAL GROUNDING METHODS

Title

VARIOUS TYPES OF BONDING/GROUNDING

Dwn. D. DUBOWSKI	Chkd. G. POOLE	Dsgn. D. DUBOWSKI
Project No.		Scale As Noted
UofS Drawing No.		Date 17-SEP-2025
Drawing No. E10	Sheet 1 OF 2	Revision 0



* CONFIRM DIMENSION WITH PEDESTAL MANUFACTURER BEFORE INSTALLATION

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN

DATE **14-OCT-2025**

SCALE **N.T.S.**

ELECTRICAL DETAILS



DRAWN BY **D. DUBOWSKI**

E

PHONE PEDESTAL BASE
PLAN VIEW & ELEVATION

CHECKED BY **K. LEEDAHL**

12

APPROVED BY .

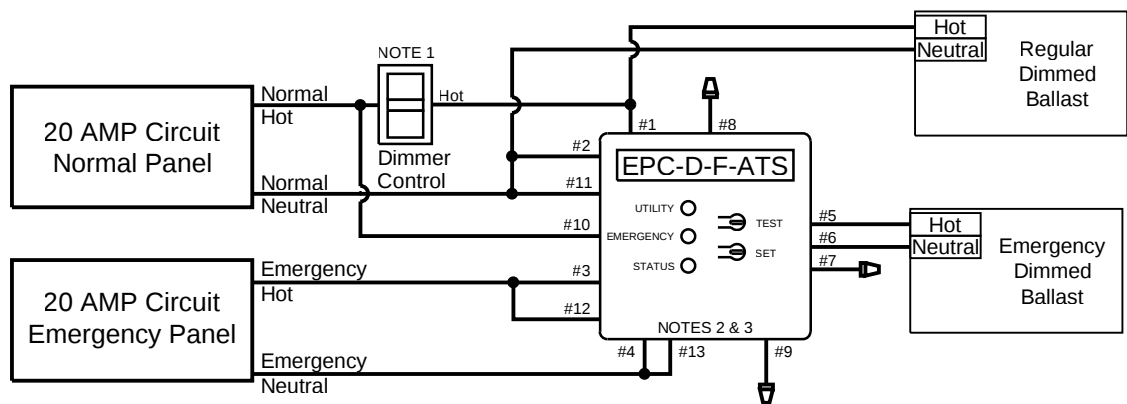
DRAWING NO.

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UNIVERSITY OF
SASKATCHEWAN

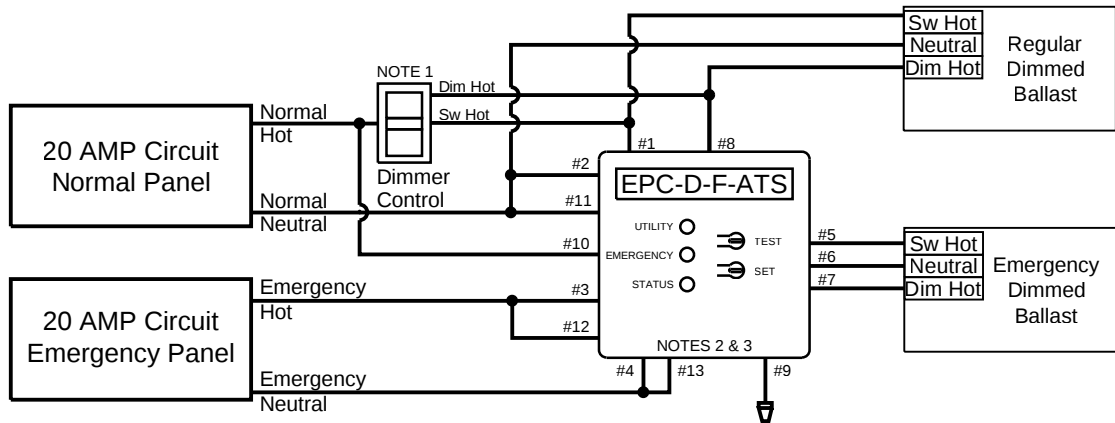
Planning, Design and Construction
University Services Building
110 Maintenance Road
Saskatoon SK
Canada S7N 5C5



1

2-WIRE DIMMABLE LOADS (LINE VOLTAGE)

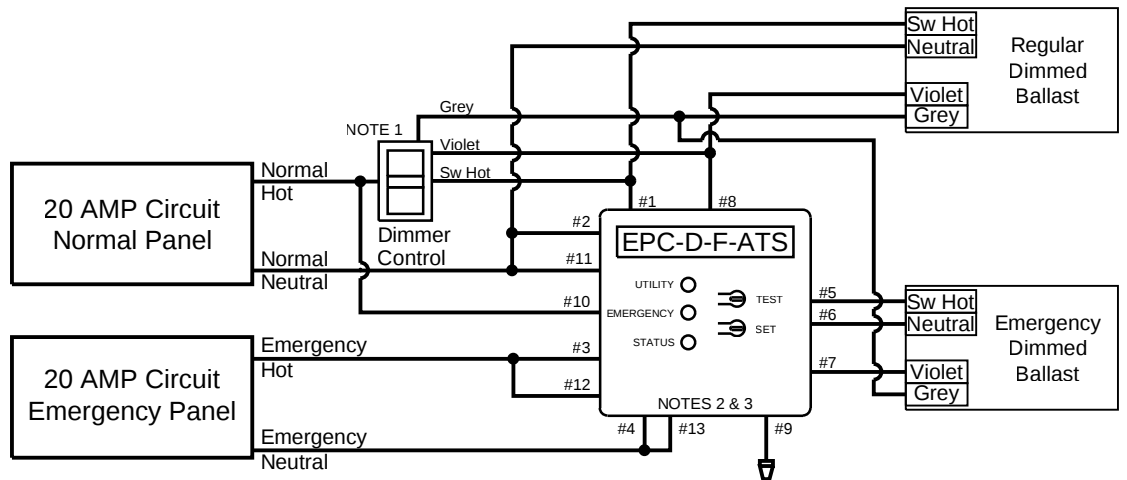
WIRING DIAGRAM



2

3-WIRE DIMMABLE LOADS

WIRING DIAGRAM



3

4-WIRE DIMMABLE LOADS (0-10V)

WIRING DIAGRAM

NOTES:

1. REFER TO DIMMER MANUFACTURER LITERATURE AND DATA SHEETS FOR RELATED WIRING CONNECTIONS AND ADDITIONAL INFORMATION.
2. WIRING DIAGRAMS ARE FOR REFERENCE PURPOSES ONLY. SEE MANUFACTURER'S LATEST DATA SHEETS FOR ADDITION INFORMATION ON THE LVS MODEL #EPC-D-F-ATS. AN APPROVED EQUAL IS LEGRAND MODEL #AD-EPC-D-F-ATS.
3. ATS DEVICE SHOWN IS FOR 120-277V OPERATION. USE OF ANY OTHER DEVICE IS NOT ALLOWED WITHOUT VERIFICATION AND APPROVAL BY U OF S ELECTRICAL ENGINEERING BEFORE IMPLEMENTATION. WHERE 347V LIGHTING IS EXISTING OR REQUIRED, THE OWNER SHALL BE NOTIFIED AND CONSULTED BEFORE DESIGN.

For Reference

Legend

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Rev.	Description	Appd.	Date
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Permits / Seals

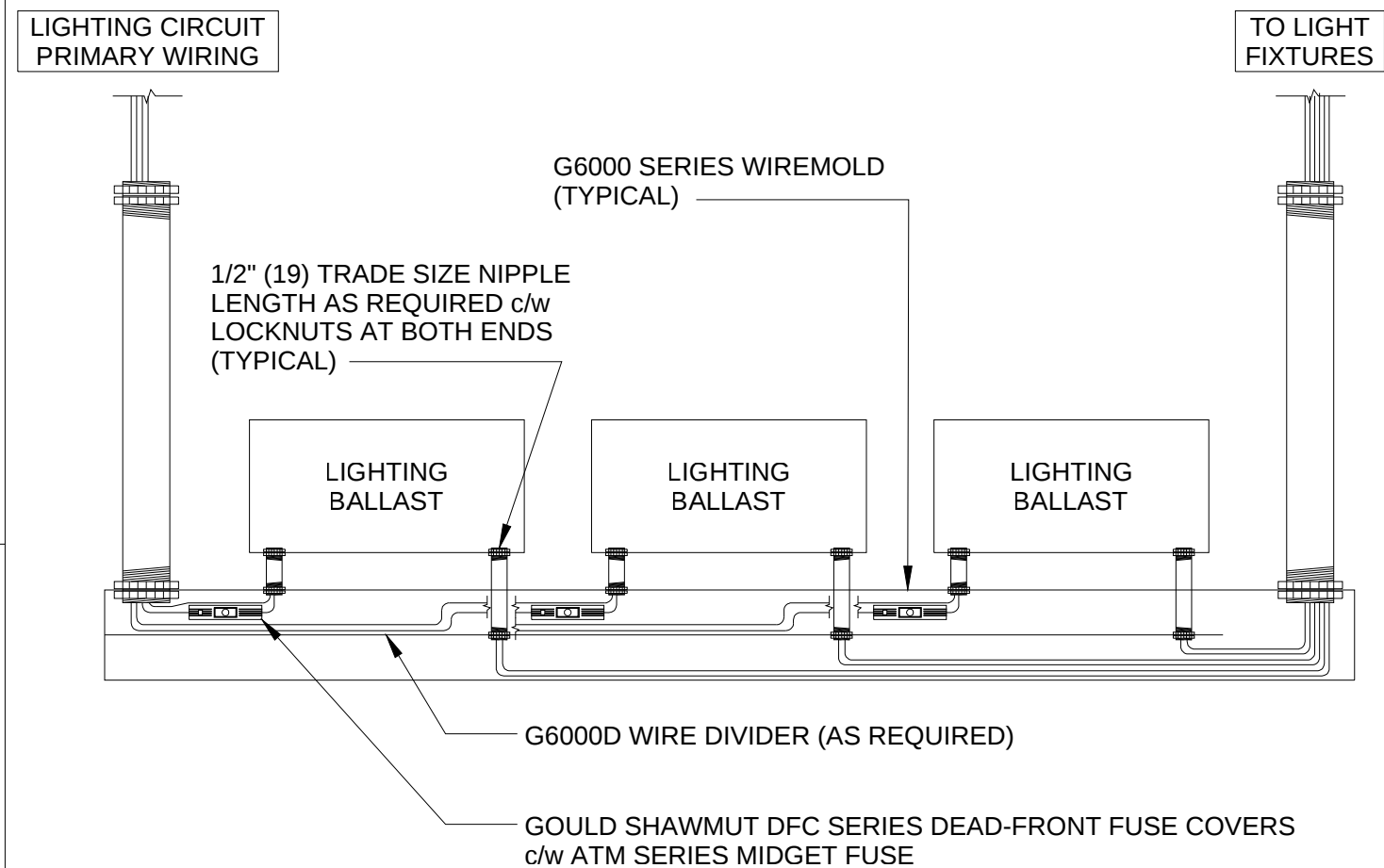
Project

EMERGENCY LIGHTING
CONTROL

Title

2-WIRE DIMMABLE LOADS (LINE
VOLTAGE), 3-WIRE DIMMABLE
LOADS, AND 4-WIRE DIMMABLE
LOADS (0-10V)

Dwn. D. DUBOWSKI	Chkd. L. DOBSON	Dsgn. D. DUBOWSKI
Project No.		Scale As Noted
UofS Drawing No.		Date 16-OCT-2025
Drawing No. E13	Sheet 1 OF 1	Revision 0



NOTES:

1. REFER TO MANUFACTURERS RECOMMENDED BALLAST CLEARANCE AND CONFIRM APPROVAL WITH U OF S ELECTRICAL BEFORE INSTALLATION.
2. THIS DRAWING IS INTENDED TO BE FOLLOWED IN PRINCIPAL. DETAILS SUCH AS ORIENTATION WILL VARY WITH MANUFACTURER.

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN		DATE	13-DEC-2001	SCALE	N.T.S.
<u>ELECTRICAL DETAILS</u>		DRAWN BY	D. DUBOWSKI	E / 14	
		CHECKED BY	K. LEEDAHL		
		REMOTE BALLAST MOUNTING LAYOUT		APPROVED BY	K. LEEDAHL

A1 (594x841mm) W:\P\O\PMO_Public\Electrical Library\Details\Revised Details\E15 - Card Access System\12.JAN2026.dwg - Monday, January 12, 2026 2:27:05 PM - DWG To PDF.pc3

Legend

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Rev.	Description	Appd.	Date

Permits / Seals

Project

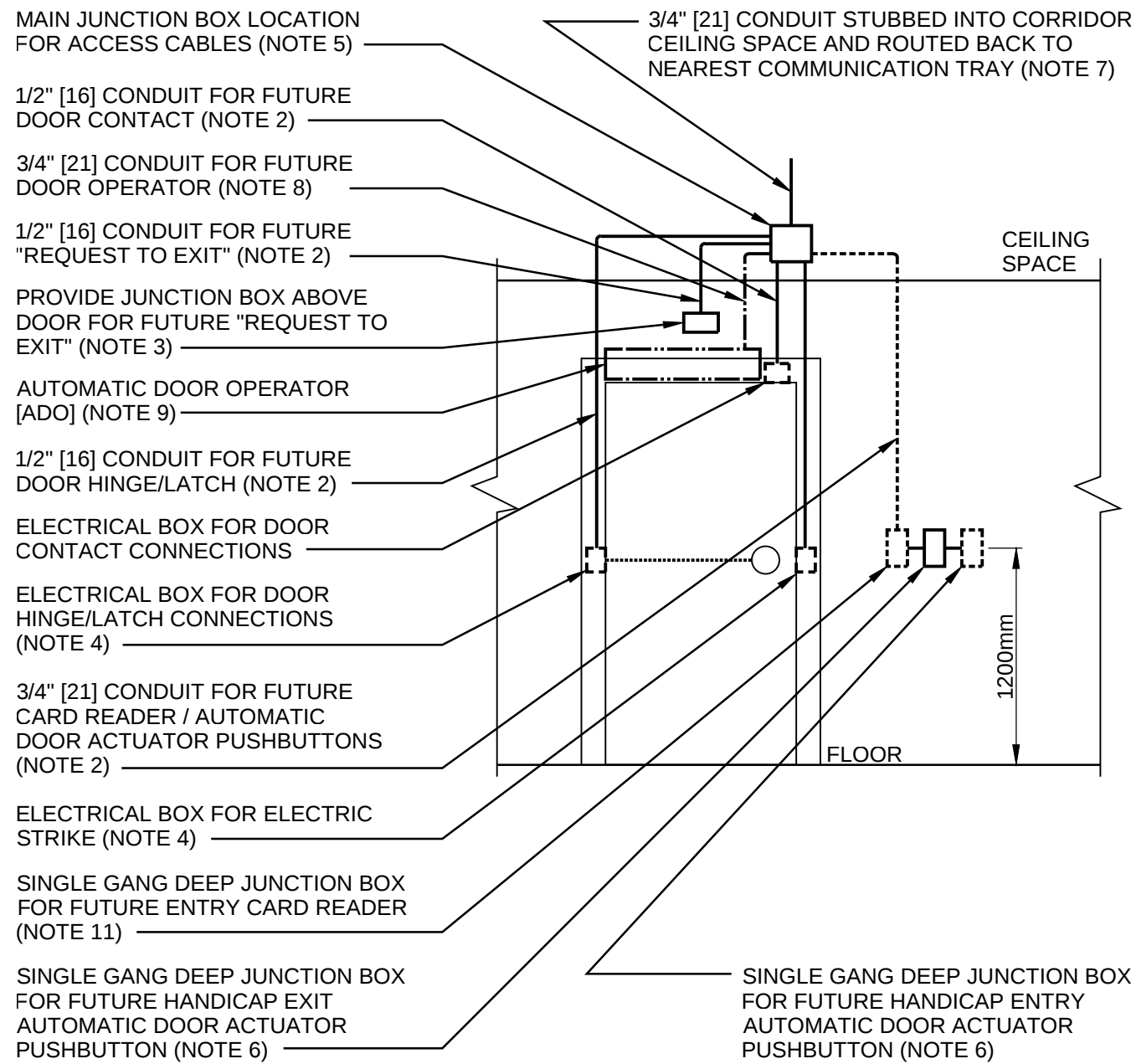
ELECTRICAL DETAILS

CARD ACCESS SYSTEM

Title

DOOR ROUGH IN LAYOUTS, CARD ACCESS CONTROL PANEL LAYOUT, AND ALL RELATED NOTES

Dwn. D. DUBOWSKI	Chkd. D. BALIAD	Dsgn. K. LEEDAHL
Project No.		Scale N/A
UofS Drawing No.		Date 16-PCT-2025
Drawing No. E15	Sheet 1 OF 1	Revision 0

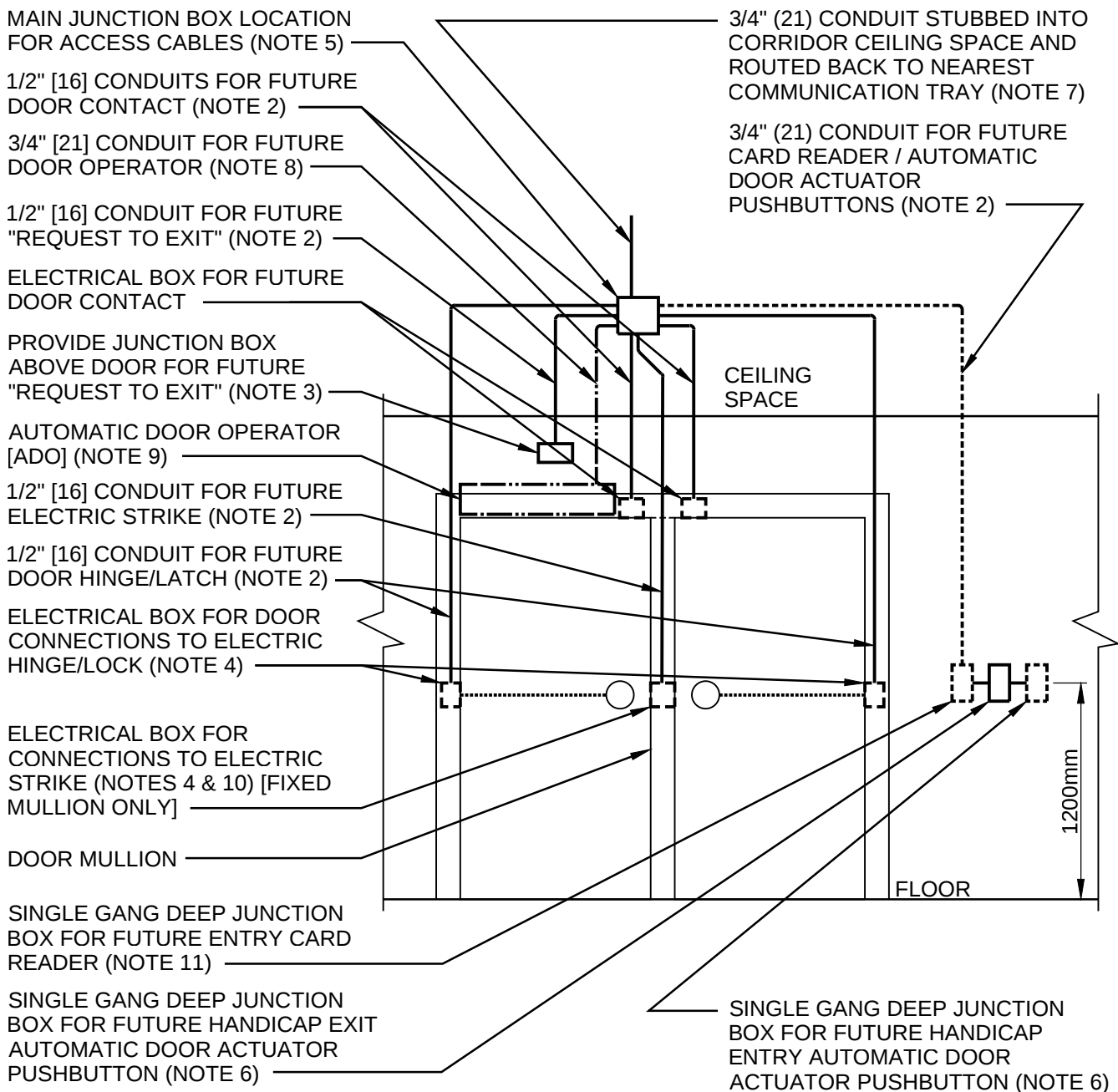


NOTE:

THIS ROUGH IN DETAIL DOES NOT INCLUDE CONDUIT FOR 120V POWER TO FUTURE DOOR OPERATOR.

1 SINGLE DOOR LAYOUT

ROUGH IN DETAIL

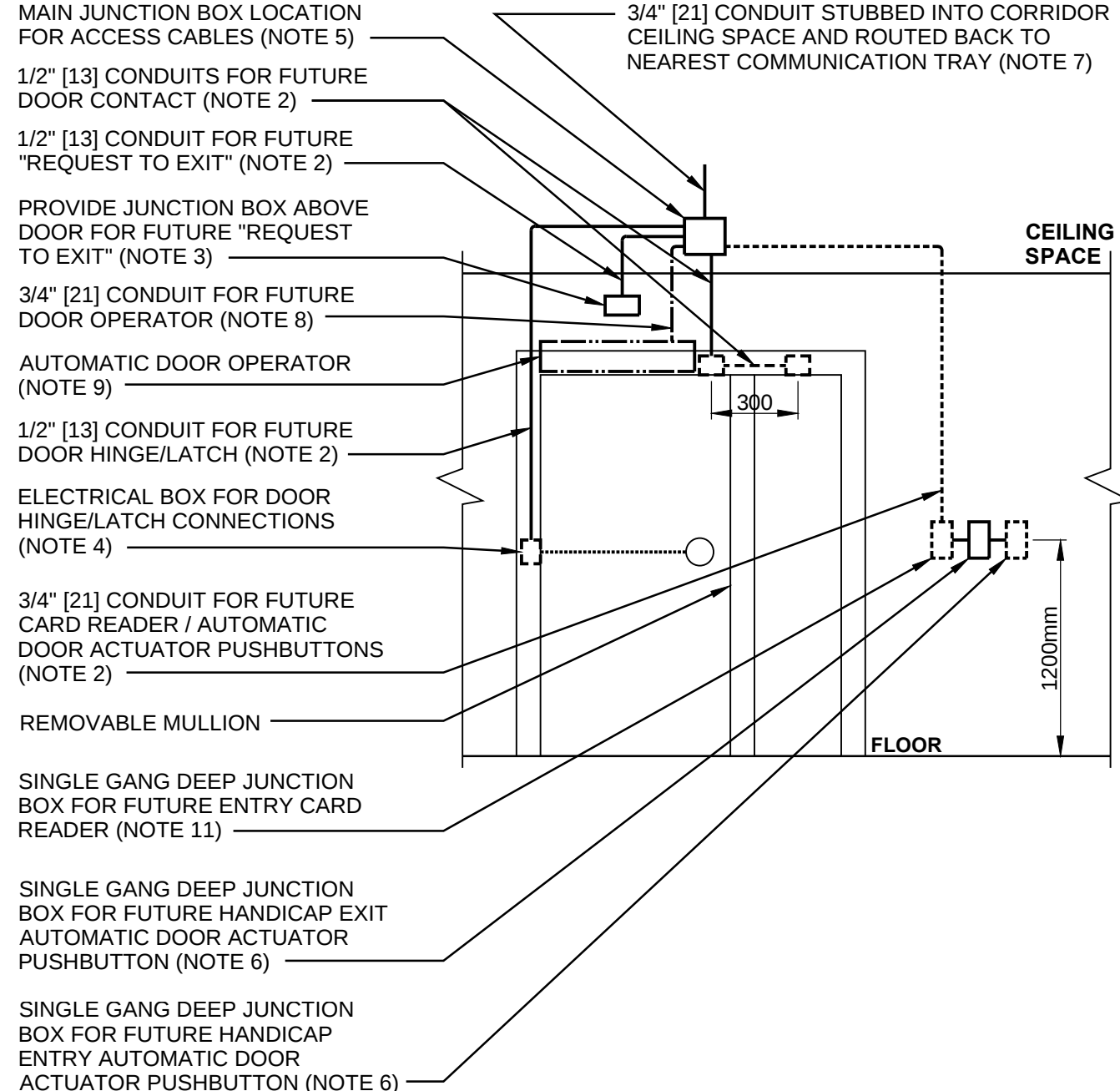


NOTE:

THIS ROUGH IN DETAIL DOES NOT INCLUDE CONDUIT FOR 120V POWER TO FUTURE DOOR OPERATOR.

2 DOUBLE DOOR WITH MULLION LAYOUT

ROUGH IN DETAIL



NOTE:

THIS ROUGH IN DETAIL DOES NOT INCLUDE CONDUIT FOR 120V POWER TO FUTURE DOOR OPERATOR.

3 SINGLE DOOR WITH MULLION (ELECTRIC LOCK)

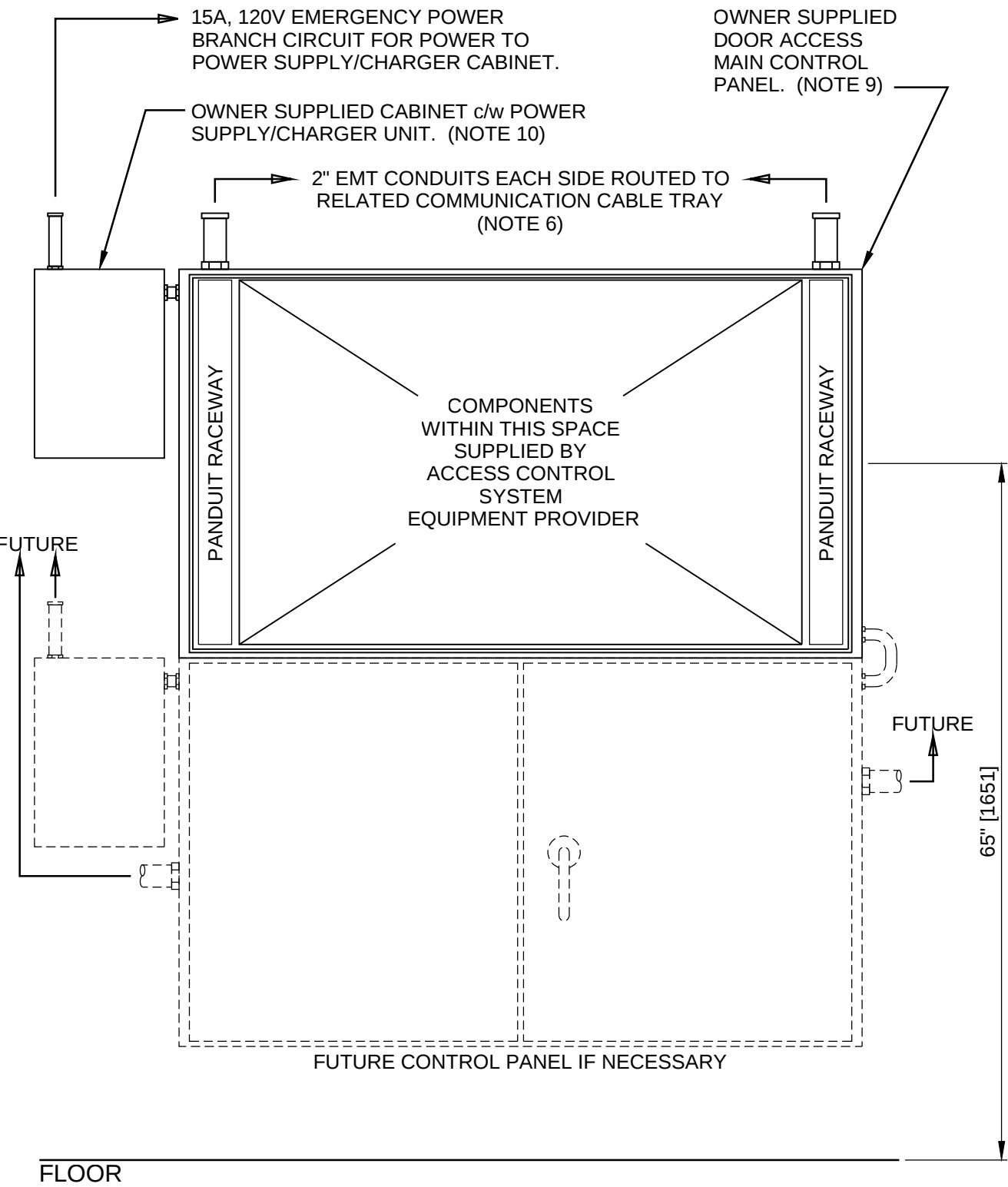
ROUGH IN DETAIL

DOOR ACCESS NOTES:

- ROUGH IN DETAILS ARE VIEWED FROM SECURED SIDE OF ROOM WALL. CONDUITS SHOWN ARE WITHIN WALL CAVITY AND ARE NOT SURFACE MOUNTED UNLESS STATED OTHERWISE.
- ALL CONDUITS TO BE PROVIDED WITH A FISH CORD FOR FUTURE INSTALLATION OF WIRING.
- REQUEST TO EXIT (RTE) DEVICE, SINGLE GANG BOX AND CONDUIT TO BE PROVIDED WHERE APPLICABLE. RTE MOUNTS TO COVER PLATE OF SINGLE GANG JUNCTION BOX MOUNTED HORIZONTALLY ABOVE DOOR. REFER TO MANUFACTURER INFORMATION FOR ACTUAL JUNCTION BOX LOCATION. SOME CIRCUMSTANCES MAY REQUIRE THE RTE TO BE INSTALLED ON THE COVER PLATE OF THE AUTOMATED DOOR OPERATOR (ADO). IF SO, THE COMMUNICATION CONDUIT TO THE ADO SHALL BE INCREASED TO THE NEXT TRADE SIZE.
- ELECTRIC STRIKE OR HINGE/LATCH TO BE PROVIDED WHERE APPLICABLE. REFER TO ACTUAL DOOR HARDWARE SCHEDULE FOR ACTUAL DOOR CONFIGURATION.
- PROVIDE MAIN JUNCTION BOX (5" SQUARE BOX) IN SECURE SIDE OF ROOM ABOVE DOOR CONTACT LOCATION. INSTALL IN CEILING SPACE WHERE APPLICABLE AND EASILY ACCESSIBLE. MANUFACTURER: ABB STEEL CITY OR APPROVED EQUAL.
- AUTOMATIC DOOR ACTUATOR PUSHBUTTON, SINGLE GANG DEEP BOX AND CONDUIT TO BE PROVIDED WHERE APPLICABLE. REFER TO DOOR HARDWARE SCHEDULE FOR ACTUAL DOOR CONFIGURATION.
- WHEN AUTOMATIC DOOR ACTUATOR PUSHBUTTON OPTION IS USED, CONDUIT IS TO BE UPSIZED TO 1" [27] TRADE SIZE.
- IF AUTOMATIC DOOR OPERATOR IS USED, DUE TO VARIATIONS IN OPERATOR DESIGN AND MANUFACTURER, REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR PROPER LOCATION OF DOOR CONTROL CONNECTIONS. PROVIDE 3/4" [21] CONDUIT IN WALL FOR DOOR OPERATOR CONTROLS FROM MAIN JUNCTION BOX TO DOOR OPERATOR. WIRE ENTRY LOCATION WILL BE DICTATED BY THE LOCK HARDWARE.
- WHEN AUTOMATIC DOOR OPERATOR IS USED, REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR PROPER LOCATION OF 120V POWER CONNECTIONS. PROVIDE 1/2" [16] CONDUIT IN WALL FROM DOOR OPERATOR POWER TO NEAREST 120V EMERGENCY POWER BRANCH CIRCUIT.
- WHERE DOOR INSTALLATION IS A DOUBLE DOOR WITH MULLION, CONDUIT AND ELECTRICAL BOX FOR ELECTRIC STRIKE IS ONLY PROVIDED WHEN A FIXED MULLION IS REQUIRED.
- WALL LOCATION AND MINIMUM SPACING BETWEEN CARD READER AND AUTOMATIC DOOR ACTUATOR PUSHBUTTONS ARE DETERMINED ON A CASE BY CASE BASIS DUE TO AMOUNT OF AVAILABLE WALL SURFACE ADJACENT TO DOORWAY AND DOOR APPLICATION (INTERIOR OR EXTERIOR DOOR).
- ALL DOOR ACCESS ROUGH IN DETAILS ARE FOR REFERENCE PURPOSES ONLY. FOR UNIQUE SITUATIONS, CONFIRM ACTUAL DEVICE LOCATIONS WITH OWNER BEFORE FINAL INSTALLATION.

4 DOOR ACCESS

NOTES



5 CARD ACCESS CONTROL PANEL LAYOUT

ROUGH IN DETAIL

CARD ACCESS CONTROL PANEL NOTES:

- UNIVERSITY TO PROVIDE SPARE RECEIVER TO SYSTEM PROVIDER FOR APPROXIMATELY 1 MONTH FOR SYSTEM TESTING PURPOSES.
- UNIVERSITY TO PROVIDE AND PROGRAM BACNET DEVICE FOR TESTING.
- CONDUIT AND WIRING TO ACCESS CONTROL PANEL TO BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR, AS WELL AS ANY 120V RELATED SERVICES FOR POWER TO PANEL. ACTUAL LOCATION IF FIELD WIRING CONDUITS IS DEPENDANT UPON PHYSICAL LAYOUT OF EQUIPMENT WITHIN CONTROL PANEL.
- CONFIRM ACTUAL SIZE OF POWER SUPPLY PANEL AND LOCATION WITH OWNER BEFORE FINAL INSTALLATION.
- MOUNTING HEIGHT FOR CARD ACCESS PANEL TO BE 65" [1651 MM] FROM CENTER OF PANEL TO TOP OF FINISHED FLOOR. SPACE BELOW PANEL IS DESIGNATED FOR ANY FUTURE EXPANSION.
- CONDUITS TO ACCOMMODATE WIRING FROM SECURITY COMPONENTS (KEYPAD, RTE, DPS, ... ETC.), MOUNTED AT DOOR LOCATIONS. CENTRAL STATION RECEIVER, UNIVERSITY SUPPLIED ACCESS CONTROL DEVICES AND NETWORK CONNECTION FOR CONTROL PANEL TO THE SWITCH. TOTAL NUMBER OF 2" CONDUITS TO BE INSTALLED VARIES ON EACH INSTALLATION. CONFIRM REQUIREMENTS WITH UNIVERSITY PRIOR TO FINAL INSTALLATION.
- ALL WIRING MUST BE RUN UNSPLICED FROM CONTROL PANEL LOCATION TO EACH ASSOCIATED DEVICE LOCATION AS PER UNIVERSITY STANDARDS.
- ANY ALTERNATE INSTALLATION METHODS OR REVISIONS MUST BE APPROVED BY OWNER.
- MAIN CONTROL PANEL IS TO BE 48" WIDE AND 30" HIGH AND IS OWNER SUPPLIED. APPROVED MANUFACTURER: HAMMOND #EN4TD30488GY.
- POWER SUPPLY CABINET AND ASSOCIATED EQUIPMENT WITHIN CABINET ARE TO BE SUPPLY BY OWNER. REFER TO U OF S SECURITY SERVICES FOR ACTUAL SIZE OF CABINET. PROVIDE 1" CONDUIT FROM CABINET TO SIDE OF CARD ACCESS CONTROL PANEL.

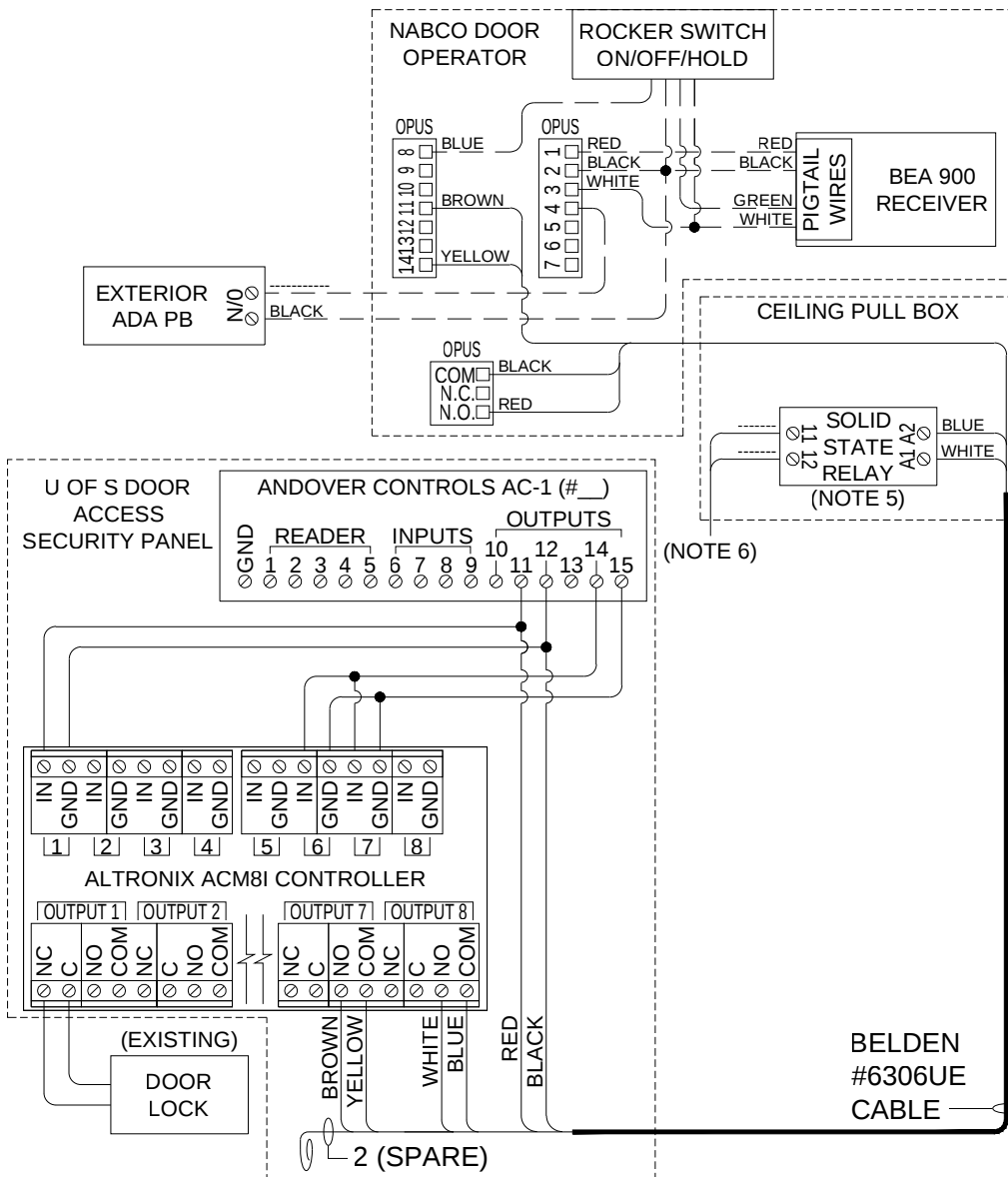
6 CARD ACCESS CONTROL PANEL

NOTES

For Reference

NOTES:

1. N/C DENOTES NO CONNECTION TO BELDEN #6306UE CABLE.
2. ALL DOOR OPERATOR AND 900 RECEIVER CONNECTIONS TO BE COMPLETED BY DOOR INSTALLER.
3. TERMINATIONS FOR SECURITY PANEL CONNECTIONS TO BE COMPLETED BY OWNER.
4. ALL WIRING SHOWN AS DASHED IS SUPPLIED AND INSTALLED BY DOOR INSTALLER.
5. DOOR RELEASE SECURITY RELAY IS PHOENIX CONTACT #REL-MR-24AC/21 HC-2961406 C/W #PRI-BSC2/2X21-2833518 RELAY BASE.
6. WIRING IS CONNECTED TO EXISTING 120V MAGNETIC HOLD OPEN CIRCUIT FOR CLOSING UPON A FIRE ALARM CONDITION.



		BEA 900 RECEIVER	OPUS CONTROL	PUSH BUTTON	ANDOVER AC-1	ALTRONIX ACM8I
BELDON #6304UE	BLACK	N/C	COM	N/C	12	N/C
	RED	N/C	N.O.	N/C	11	N/C
	WHITE	N/C	N/C	N/C	N/C	X
	GREEN	N/C	N/C	N/C	N/C	N/C
	BROWN	N/C	11	N/C	14	N/C
	BLUE	N/C	N/C	N/C	N/C	X
	ORANGE	N/C	N/C	N/C	N/C	N/C
	YELLOW	N/C	14	N/C	15	N/C

REFER TO COLOR CHART AT LEFT FOR U OF S DOOR ACCESS SECURITY PANEL INTERFACE CONNECTIONS

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
Rev.	Description	Appd.	Date

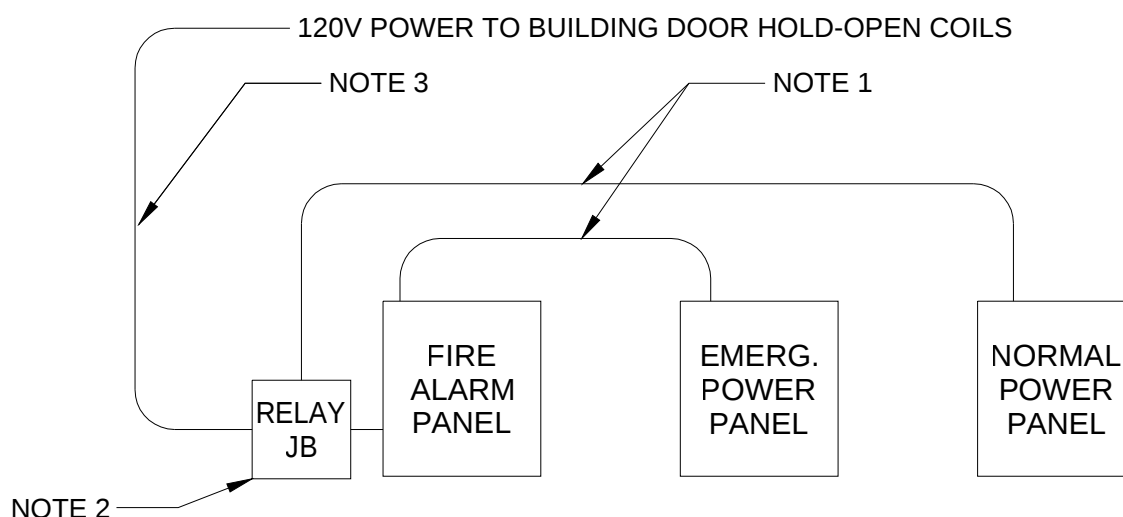
UNIVERSITY OF SASKATCHEWAN

ELECTRICAL DETAILS

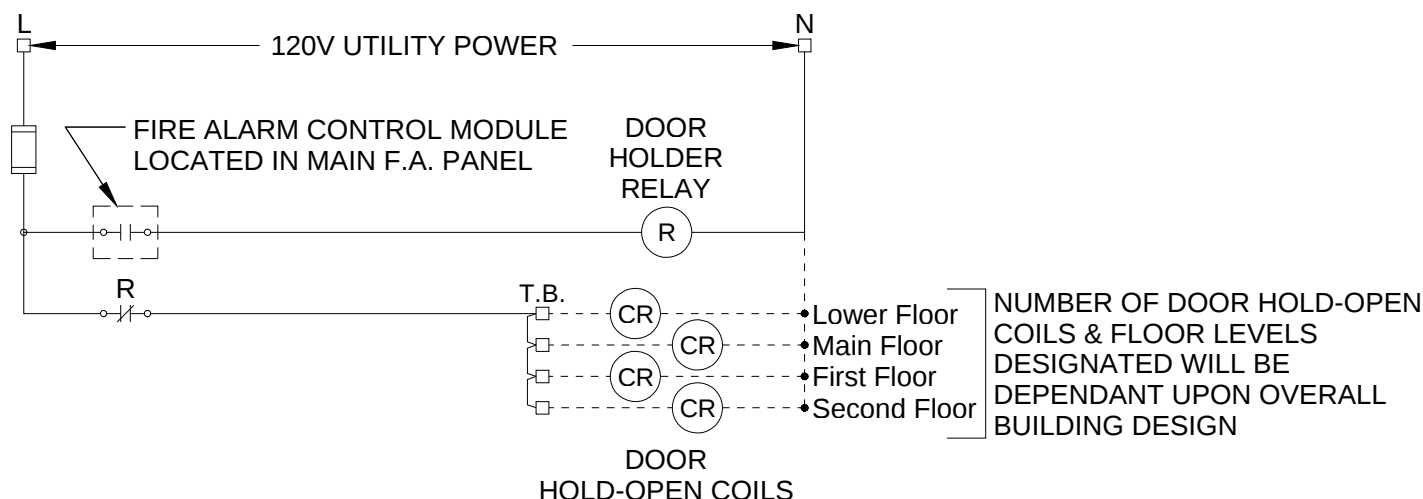
DOOR ACCESS INTERFACE
WIRING DIAGRAM



DATE	20-FEB-2020	SCALE	N.T.S.
DRAWN BY	D. DUBOWSKI	E	16
CHECKED BY	G. POOLE		
APPROVED BY	D. BALIAD		
		DRAWING NO.	



FIRE ALARM DOOR HOLD-OPEN BLOCK DIAGRAM



FIRE ALARM DOOR HOLD-OPEN SCHEMATIC DIAGRAM

NOTES:

1. PROVIDE ONE EMERGENCY POWER CIRCUIT FOR FIRE ALARM PANEL AND ONE UTILITY POWER CIRCUIT FOR DOOR HOLD-OPEN SYSTEM. 1/2" CONDUIT ACCEPTABLE FOR THIS INSTALLATION.
2. PROVIDE 8" X 8" ENCLOSURE FOR DOOR HOLDER 120V RELAY AND LOCATE BOX ADJACENT TO MAIN FIRE ALARM PANEL.
3. PROVIDE CONDUIT FROM RELAY ENCLOSURE TO DOOR HOLD-OPEN COILS. CONDUIT SYSTEM TO BE SEPARATE FROM FIRE ALARM SYSTEM CONDUITS.

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN

DATE 07-MAY-2009

SCALE N.T.S.

**ELECTRICAL DETAILS
FIRE ALARM SYSTEMS
DOOR HOLD OPEN
BLOCK/SCHEMATIC**



DRAWN BY D. DUBOWSKI

E

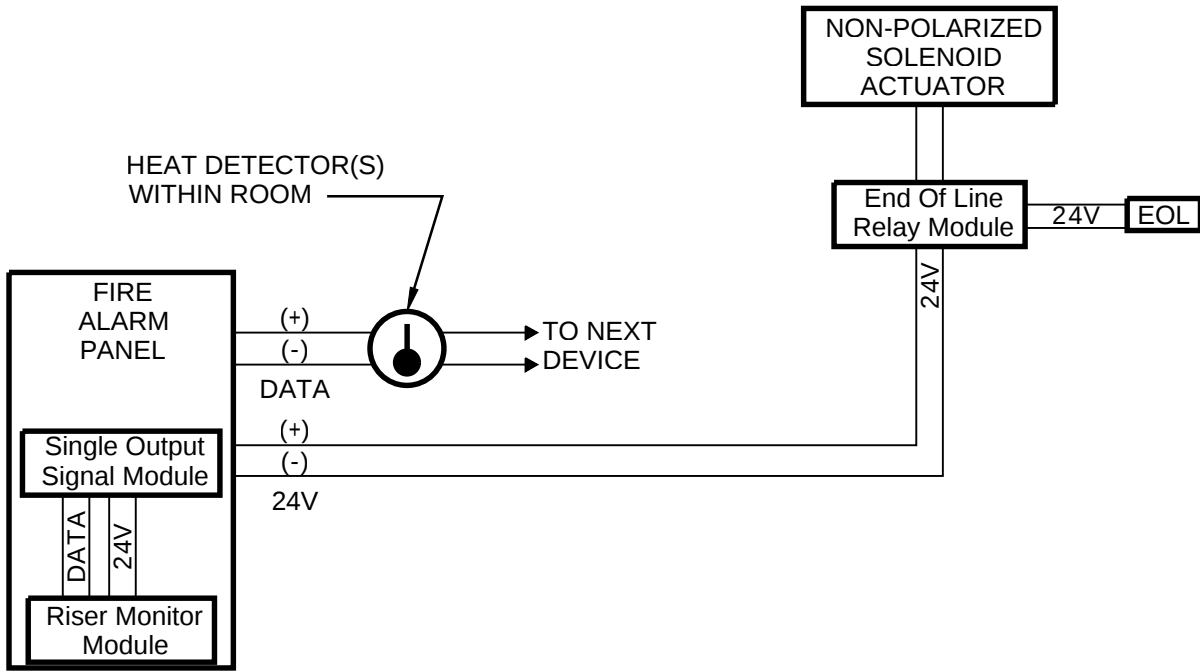
CHECKED BY K. LEEDAHL

APPROVED BY K. LEEDAHL

DRAWING NO.

17

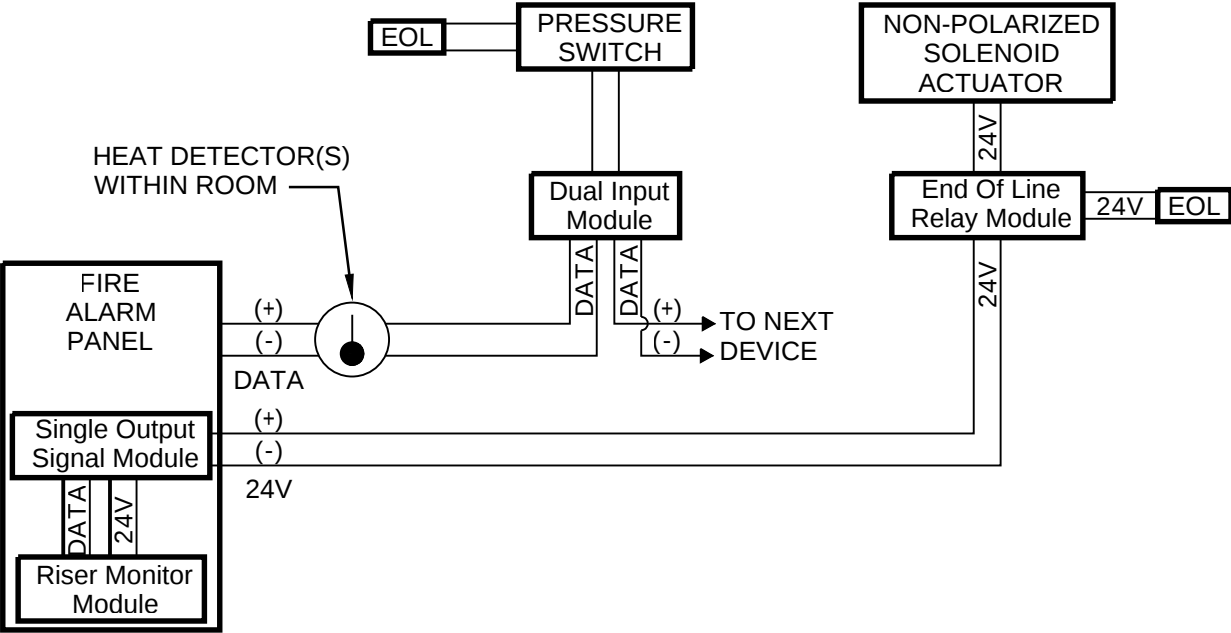
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SINGLE INTERLOCK PREACTION SYSTEM WIRING DIAGRAM

NOTES:

1. THIS DIAGRAM IS FOR REFERENCE ONLY. COMPONENTS MAY VARY FROM MANUFACTURER TO MANUFACTURER.



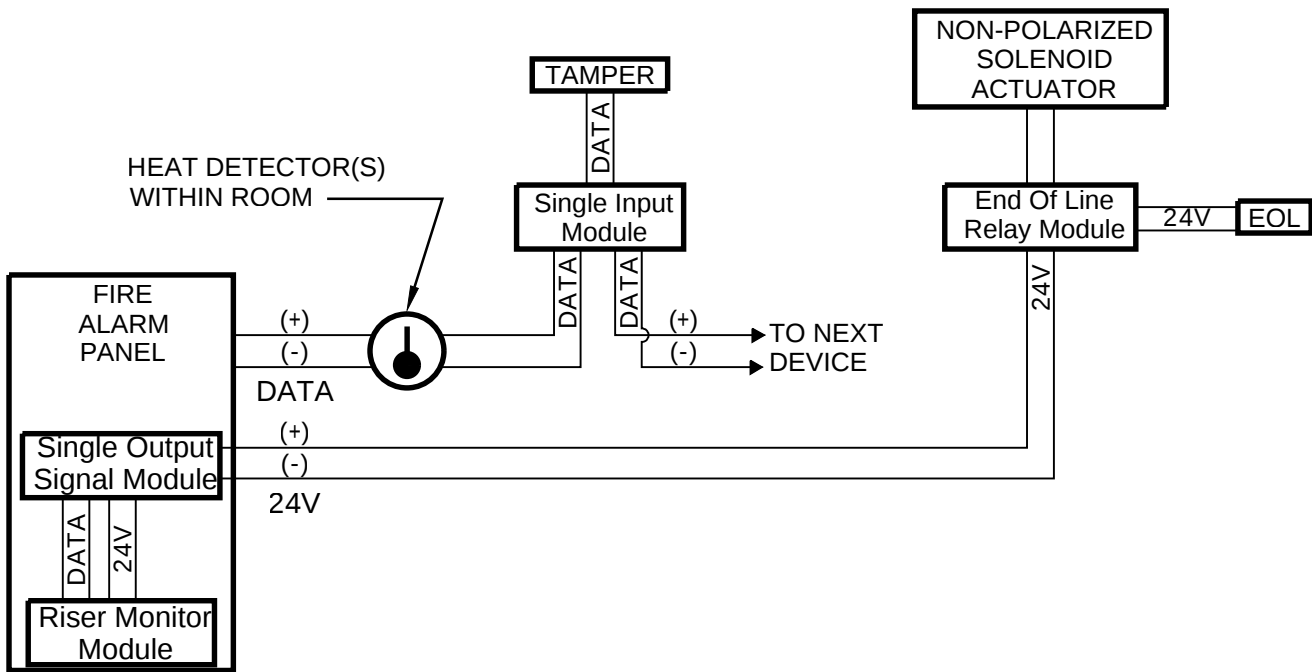
DOUBLE INTERLOCK PREACTION SYSTEM WIRING DIAGRAM

NOTES:

1. THIS DIAGRAM IS FOR REFERENCE ONLY. COMPONENTS MAY VARY FROM MANUFACTURER TO MANUFACTURER.

1 SINGLE INTERLOCK PREACTION SYSTEM WIRING DIAGRAM

2 DOUBLE INTERLOCK PREACTION SYSTEM WIRING DIAGRAM



PREACTION NON-PRESSURIZED SOLENOID WIRING DIAGRAM

NOTES:

1. THIS DIAGRAM IS FOR REFERENCE ONLY. COMPONENTS MAY VARY FROM MANUFACTURER TO MANUFACTURER AND DEPENDING UPON THE LATEST INFORMATION SUPPLIED FROM THE MANUFACTURER.

3 PREACTION NON-PRESSURIZED SOLENOID WIRING DIAGRAM



Planning, Design and Construction
University Services Building
110 Maintenance Road
Saskatoon SK
Canada S7N 5C5

Legend

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Rev.	Description	Appd.	Date
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Permits / Seals

Project

ELECTRICAL DETAILS

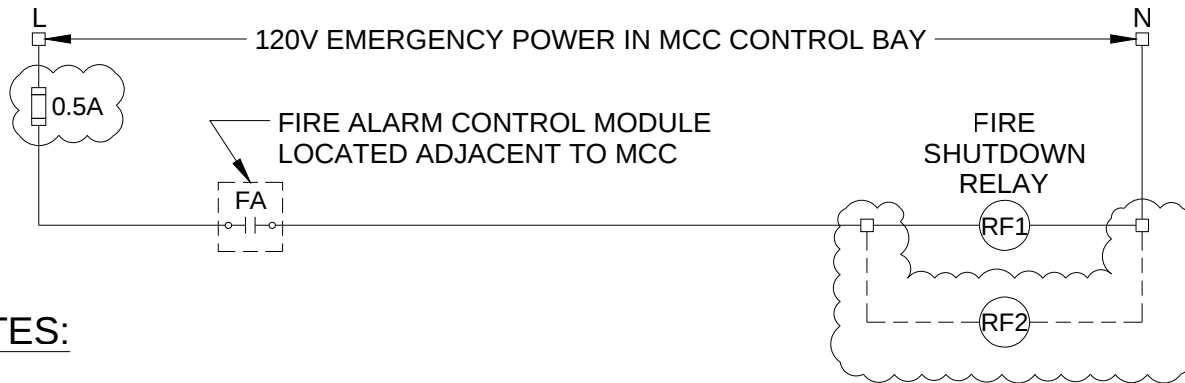
FIRE SUPRESSION PREACTION
SYSTEMS

Title

SINGLE & DOUBLE INTERLOCK
AND PREACTION
NON-PRESSURIZED SOLENOID

Dwn. D. DUBOWSKI	Chkd. G. POOLE	Dsgn. D. DUBOWSKI
Project No.	Scale As Noted	Date 17-SEP-2025
Drawing No. E18	Sheet 1 OF 1	Revision 0

For Reference

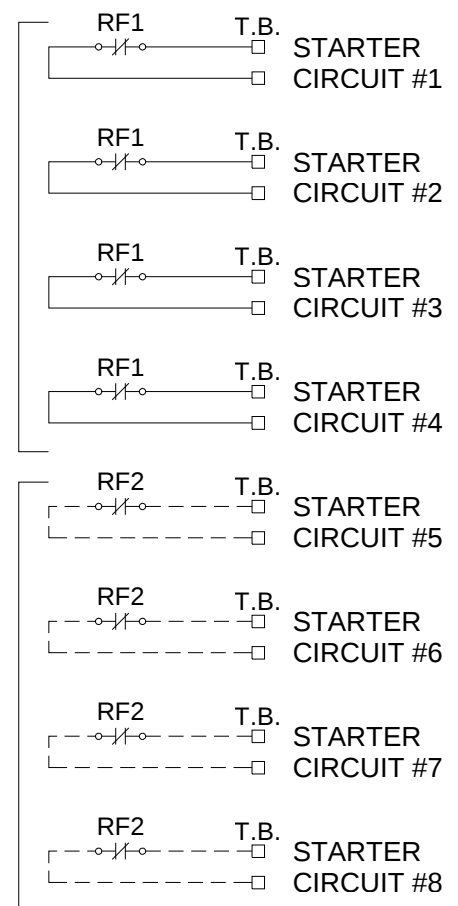


NOTES:

1. ACTUAL NUMBER AND DESIGNATIONS OF MOTOR STARTERS WILL BE DEPENDANT UPON OVERALL BUILDING DESIGN.
2. CONFIRM ALL MOTOR STARTER DESIGNATIONS, WIRING AND MCC LOCATIONS WITH CONTROLS DIVISION.
3. FIRE ALARM SHUTDOWN RELAYS TO BE 120V COIL, NEMA RATED 4-POLE MASTER RELAY c/w N.C. CONTACTS, 600V, 20A, RATED. SECOND RELAY IS INSTALLED IF MORE THAN 4 FANS ARE REQUIRED TO BE SHUT-DOWN. MANUFACTURER: SQUARE D #SQD 8501XMO40V02.
4. SCHEMATIC DIAGRAM IS FOR REFERENCE ONLY AND SHALL BE CONFIRMED WITH SCHEMATICS BY CONTROLS DIVISION BEFORE COMPLETION OF WIRING TERMINATIONS.
5. FIRE ALARM CONTROL MODULE IS PROGRAMMED FOR 5 SECOND DELAY, UPON NOTIFICATION OF FIRE ALARM, BEFORE INITIATING FAN SHUT DOWN.
6. A SEPARATE FIRE ALARM CONTROL MODULE IS LOCATED ADJACENT TO CCMS CONTROL PANEL FOR IMMEDIATE FIRE ALARM INPUT.

7. FUSE HOLDER, TERMINAL BLOCKS, AND RELATED COMPONENTS TO BE PHOENIX CONTACT WITH CHARACTERISTICS AS FOLLOWS:

- FUSE HOLDER MODULAR TERMINAL BLOCK, 250V, 28A, #12 - #26 AWG., BLACK, PART NUMBER UT 4-L/HESI (5X20).
- FEED-THROUGH TERMINAL BLOCK, 1000V, 32A, #12 - #26 AWG., GRAY, PART NUMBER UT 4.
- END BARRIER, GREY, PART NUMBER D-UT 2,5/10.
- MARKER CARRIER, (40mm X 17mm), DIN MOUNT, PART NUMBER UBE/D.
- END CLAMP/ANCHOR, GRAY, PART NUMBER CLIPFIX 35-5.



FIRE ALARM FAN SHUTDOWN SCHEMATIC DIAGRAM

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN		DATE	22-SEP-2025	SCALE	N.T.S.
<u>ELECTRICAL DETAILS</u> FIRE ALARM SYSTEMS FAN SHUTDOWN CIRCUIT SCHEMATIC DIAGRAM		DRAWN BY	D. DUBOWSKI	E /	19
		CHECKED BY	G. POOLE		
		APPROVED BY	D. DUBOWSKI		

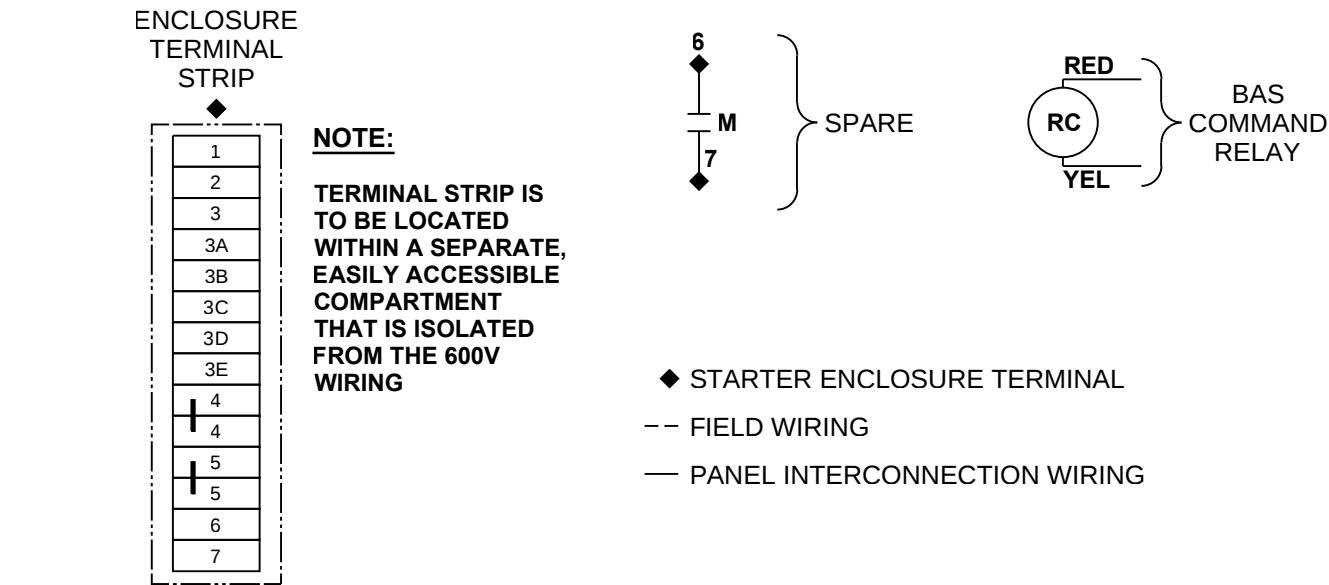
0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
Rev.	Description	Appd.	Date

Project

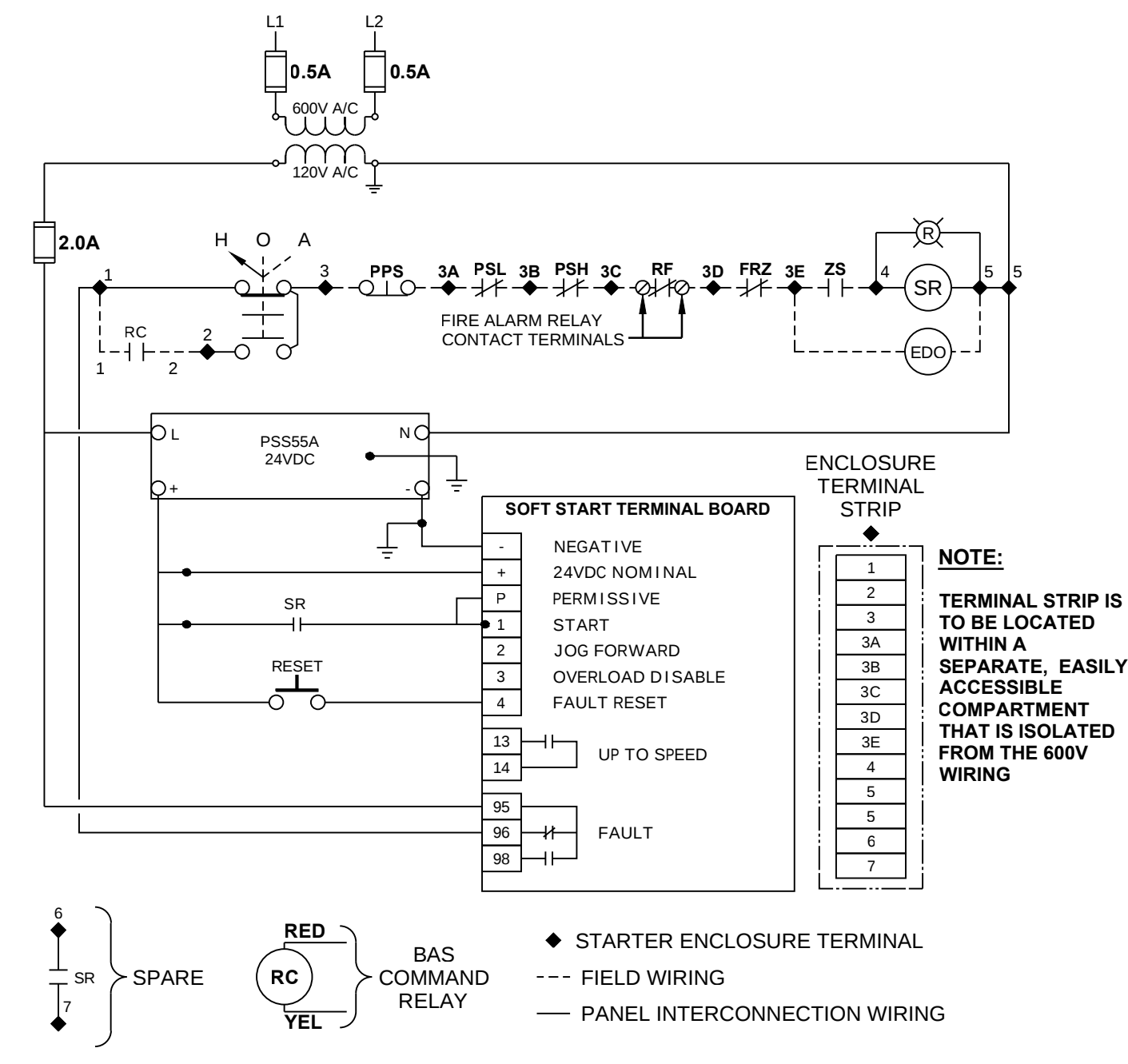
THREE PHASE MOTOR STARTERS

Title

Dwn. D. DUBOWSKI	Chkd. D. BALIAD	Dsgn. K. LEEDAHL
Project No.		Scale N/A
UoFS Drawing No.		Date 16-PCT-2025
Drawing No. E20	Sheet 1 OF 1	Revision 0



2 FVNR STARTER IN ENCLOSURE (NON-MCC)



5 SOFT STARTER IN ENCLOSURE (NON-MCC)

WIRING SCHEMATIC

1. FIELD DEVICES MAY NOT BE EXACTLY AS SHOWN AND SHALL BE CO-ORDINATED WITH CONTROLS AND MECHANICAL DRAWINGS BEFORE TERMINATIONS AND FINAL INSTALLATION BY DIVISION 16.
2. FIELD DEVICES ARE IDENTIFIED AS FOLLOWS: **PPS** = A PUSH-PULL STOP BUTTON, **PSL** = PRESSURE SWITCH LOW, **PSH** = PRESSURE SWITCH HIGH, **RF** = RELAY FOR FIRE ALARM, **FRZ** = FREEZE STAT, **EDO** = ELECTRIC DAMPER OPERATOR, AND **ZS** = DAMPER LIMIT SWITCH.
3. STARTERS THAT REQUIRE CCMS CONTROL SHALL USE AN HOA SWITCH WITH MOMENTARY CONTACT, SPRING RETURN FROM THE "HAND" TO "OFF" POSITION AND MAINTAINED CONTACT WHEN IN THE "AUTO" POSITION. AIR COMPRESSORS AND NON-CCMS EQUIPMENT ARE TO USE A MAINTAINED CONTACT HOA SWITCH, UNLESS SPECIFIED OTHERWISE.
4. THE **RC** RELAY [**REMOTE COMMAND**] WILL BE SUPPLIED BY OWNER, INSTALLED BY CONTROLS TENDER AND MOUNTED IN THE DRIVE ENCLOSURE FOR STAND-ALONE DRIVES OR PROVIDED IN AN MCC CONTROL BAY IF THE VFD DRIVE OR STARTER IS LOCATED WITHIN AN MCC. RELAY WILL RESIDE WITHIN TERMINAL STRIP LAYOUT.
5. OPEN DIAMOND TERMINALS ARE MOUNTED WITHIN AN ADJACENT CONTROL BAY. CLOSED DIAMOND TERMINALS ARE MOUNTED WITHIN THE DRIVE ENCLOSURE. FOR STAND-ALONE DRIVES WITHOUT A CONTROL BAY THE OPEN TERMINALS ARE OMITTED. ALL TERMINALS NECESSARY TO COMPLETE WIRING CONNECTIONS WITHIN VFD DRIVE ENCLOSURE, ARE TO BE SUPPLIED BY MANUFACTURER.
6. THE TRANSFORMER, FUSES, HOA, RUN INDICATOR, AND SR RELAY SHALL BE MOUNTED WITHIN THE DRIVE OR STARTER ENCLOSURE. SR RELAY SHALL BE A 120VAC, 8 PIN, 2 POLE RELAY WITH SOCKET.
7. FOR ADDITIONAL INFORMATION ON FIRE ALARM SHUTDOWN CONTACT, REFERENCE U OF S ELECTRICAL DETAIL E/38.

SOFT STARTER NOTES:

1. FIELD DEVICES MAY NOT BE EXACTLY AS SHOWN AND SHALL BE CO-ORDINATED WITH CONTROLS AND MECHANICAL DRAWINGS BEFORE TERMINATIONS AND FINAL INSTALLATION BY DIVISION 16.
2. FIELD DEVICES ARE IDENTIFIED AS FOLLOWS: **PPS** = A PUSH-PULL STOP BUTTON, **PSL** = PRESSURE SWITCH LOW, **PSH** = PRESSURE SWITCH HIGH, **RF** = RELAY FOR FIRE ALARM, **FRZ** = FREEZE STAT, **EDO** = ELECTRIC DAMPER OPERATOR, AND **ZS** = DAMPER LIMIT SWITCH.
3. STARTERS THAT REQUIRE CCMS CONTROL SHALL USE AN HOA SWITCH WITH MOMENTARY CONTACT, SPRING RETURN FROM THE "HAND" TO "OFF" POSITION AND MAINTAINED CONTACT WHEN IN THE "AUTO" POSITION. AIR COMPRESSORS AND NON-CCMS EQUIPMENT ARE TO USE A MAINTAINED CONTACT HOA SWITCH, UNLESS SPECIFIED OTHERWISE.
4. THE **RC** RELAY [**REMOTE COMMAND**] SHALL BE SUPPLIED BY THE OWNER AND MOUNTED IN THE SOFT START ENCLOSURE FOR STAND-ALONE DRIVES OR IN A MCC CONTROL BAY IF THE SOFT START IS LOCATED WITHIN AN MCC.
5. OPEN DIAMOND TERMINALS ARE MOUNTED WITHIN AN ADJACENT CONTROL BAY. CLOSED DIAMOND TERMINALS ARE MOUNTED WITHIN THE SOFT START ENCLOSURE. FOR STAND-ALONE SOFT START WITHOUT A CONTROL BAY THE OPEN TERMINALS ARE OMITTED. ALL TERMINALS NECESSARY TO COMPLETE WIRING CONNECTIONS WITHIN SOFT START ENCLOSURE, ARE TO BE SUPPLIED BY MANUFACTURER.
6. THE TRANSFORMER, FUSE, HOA, RUN INDICATOR AND SR RELAY SHALL BE MOUNTED WITHIN THE DRIVE OR STARTER ENCLOSURE. SR RELAY SHALL BE A 120VAC, 8 PIN, 2 POLE RELAY WITH SOCKET.
7. SCHEMATIC DEPICTED IN DRAWINGS E/30A & E/30B ARE FOR REFERENCE PURPOSES ONLY. REFER TO MANUFACTURER'S INFORMATION FOR ACTUAL VFD DRIVE TERMINATIONS AND DESIGNATIONS. MANUFACTURER TO REVISE SHOP DRAWINGS AS REQUIRED TO SUIT U OF S REQUIREMENTS. SHOP DRAWINGS ARE TO BE REVIEWED AND ACCEPTED BY U OF S BEFORE FINAL IMPLEMENTATION.
8. **SR** CONTACT OPEN SHALL STOP DRIVE AND PREVENT DIRECT ACCESS TO DRIVE CONTROLS VIA FRONT PANEL. SR CONTACT CLOSED SHALL START DRIVE FORWARD.
9. WHEN HOA SWITCH IS IN "AUTO", REFERENCE SPEED CONTROL SIGNAL FROM BAS IS SELECTED. WHEN HOA IS IN "OFF" POSITION, NO EXTERNAL REFERENCE IS SELECTED. WHEN HOA IS IN "HAND" POSITION, KEYPAD OPERATION IS SELECTED.
10. FAULT AND STATUS CONTACTS SHALL BE DRY. FAULT CONTACT SHALL BE RATED AT 1 AMP RMS, 120V OR GREATER.
11. CONTROL TRANSFORMER SHALL BE RATED 75 VA MINIMUM.
12. WHERE STAND ALONE SOFT START ENCLOSURES REQUIRE FIRE ALARM SHUT DOWN, A 1/2" (16) EMT CONDUIT SHALL BE INSTALLED BACK TO THE NEAREST CCMS CONTROLLED MCC CONTROL BAY, UNLESS STATED OTHERWISE.
13. SOFT START FOR MOTORS 15 H.P. AND BELOW, MAY BE INSTALLED WITHIN AN MCC UPON APPROVAL BY OWNER. FOR MOTORS ABOVE 15 H.P., SOFT START SHALL BE INSTALLED AS STAND-ALONE UNITS. STARTERS FOR MOTORS SHALL BE INSTALLED WITHIN AN MCC, UNLESS STATED OTHERWISE.

For Reference

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
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Rev.	Description	Appd.	Date
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Permits / Seals

Project

ELECTRICAL DETAILS

VFD STARTER

Title

**VFD STARTERS, IN MCC &
NON-MCC, AND GENERAL NOTES**

Dwn. D. DUBOWSKI	Chkd. D. BALIAD	Dsgn. K. LEEDAHL
Project No.		Scale N/A
UofS Drawing No.		Date 16-PCT-2025
Drawing No. E21	Sheet 1 OF 1	Revision 0



GENERAL NOTES:

1. FIELD DEVICES MAY NOT BE EXACTLY AS SHOWN AND SHALL BE CO-ORDINATED WITH CONTROLS AND MECHANICAL DRAWINGS BEFORE TERMINATIONS AND FINAL INSTALLATION BY DIVISION 16.
2. FIELD DEVICES ARE IDENTIFIED AS FOLLOWS: **PPS** = A PUSH-PULL STOP BUTTON, **PSL** = PRESSURE SWITCH LOW, **PSH** = PRESSURE SWITCH HIGH, **RF** = RELAY FOR FIRE ALARM, **FRZ** = FREEZE STAT, **EDO** = ELECTRIC DAMPER OPERATOR, AND **ZS** = DAMPER LIMIT SWITCH.
3. STARTERS THAT REQUIRE CCMS CONTROL SHALL USE AN HOA SWITCH WITH MOMENTARY CONTACT, SPRING RETURN FROM THE "HAND" TO "OFF" POSITION AND MAINTAINED CONTACT WHEN IN THE "AUTO" POSITION. AIR COMPRESSORS AND NON-CCMS EQUIPMENT ARE TO USE A MAINTAINED CONTACT HOA SWITCH, UNLESS SPECIFIED OTHERWISE.
4. THE **RC** RELAY [**REMOTE COMMAND**] WILL BE SUPPLIED BY OWNER, INSTALLED BY CONTROLS TENDER AND MOUNTED IN THE DRIVE ENCLOSURE FOR STAND-ALONE DRIVES OR PROVIDED IN AN MCC CONTROL BAY IF THE VFD DRIVE OR STARTER IS LOCATED WITHIN AN MCC. RELAY WILL RESIDE WITHIN TERMINAL STRIP LAYOUT.
5. OPEN DIAMOND TERMINALS ARE MOUNTED WITHIN AN ADJACENT CONTROL BAY. CLOSED DIAMOND TERMINALS ARE MOUNTED WITHIN THE DRIVE ENCLOSURE. FOR STAND-ALONE DRIVES WITHOUT A CONTROL BAY THE OPEN TERMINALS ARE OMITTED. ALL TERMINALS NECESSARY TO COMPLETE WIRING CONNECTIONS WITHIN VFD DRIVE ENCLOSURE, ARE TO BE SUPPLIED BY MANUFACTURER.
6. THE TRANSFORMER, FUSES, HOA, RUN INDICATOR, AND SR RELAY SHALL BE MOUNTED WITHIN THE DRIVE OR STARTER ENCLOSURE. SR RELAY SHALL BE A 120VAC, 8 PIN, 2 POLE RELAY WITH SOCKET.
7. FOR ADDITIONAL INFORMATION ON FIRE ALARM SHUTDOWN CONTACT, REFERENCE U OF S ELECTRICAL DETAIL E/38.

3 GENERAL NOTES

SCHEMATIC NOTES

VARIABLE FREQUENCY DRIVE NOTES:

1. SCHEMATIC DEPICTED IN ASSOCIATED DRAWINGS ARE FOR REFERENCE PURPOSES ONLY. REFER TO MANUFACTURER'S INFORMATION FOR ACTUAL VFD DRIVE TERMINATIONS AND DESIGNATIONS. MANUFACTURER TO REVERSE SHOP DRAWINGS AS REQUIRED TO SUIT U OF S REQUIREMENTS. SHOP DRAWINGS ARE TO BE REVIEWED AND ACCEPTED BY U OF S BEFORE FINAL IMPLEMENTATION.
2. **SR** CONTACT OPEN SHALL STOP DRIVE AND PREVENT DIRECT ACCESS TO DRIVE CONTROLS VIA FRONT PANEL. **SR** CONTACT CLOSED SHALL START DRIVE FORWARD.
3. WHEN HOA SWITCH IS IN "AUTO", REFERENCE SPEED CONTROL SIGNAL FROM BAS IS SELECTED. WHEN HOA IS IN "OFF" POSITION, NO EXTERNAL REFERENCE IS SELECTED. WHEN HOA IS IN "HAND" POSITION, KEYPAD OPERATION IS SELECTED.
4. FAULT AND STATUS CONTACTS SHALL BE DRY. FAULT CONTACT SHALL BE RATED AT 1 AMP RMS, 120V OR GREATER.
5. WHERE STAND ALONE VFD DRIVE ENCLOSURES REQUIRE FIRE ALARM SHUT DOWN, A 1/2" (16) EMT CONDUIT SHALL BE INSTALLED BACK TO THE NEAREST CCMs CONTROLLED MCC CONTROL BAY, UNLESS STATED OTHERWISE.
6. VFD DRIVES FOR MOTORS 15 H.P. AND BELOW, MAY BE INSTALLED WITHIN AN MCC UPON APPROVAL BY DWMR. FOR MOTORS ABOVE 15 H.P., VFD DRIVES SHALL BE INSTALLED IN STATIONARY UNITS. STARTERS FOR MOTORS SHALL BE INSTALLED WITHIN AN MCC, UNLESS STATED OTHERWISE.
7. **CF** DENOTES COOLING FAN WHICH IS TO BE MOUNTED IN THE MCC OR ENCLOSURE AND SHALL BE SUPPLIED BY MANUFACTURER.

4 VFD NOTES

SCHEMATIC NOTES

For Reference

A1 (594x841mm) W:\P\O\PMO_Public\Electrical Library\Details\Revised Details\E22 - Single Phase Starters(12-AN2026).dwg - Monday, January 12, 2026 3:59:59 PM - DWG To PDF.pc3

Legend

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
Rev.	Description	Appd.	Date

Permits / Seals

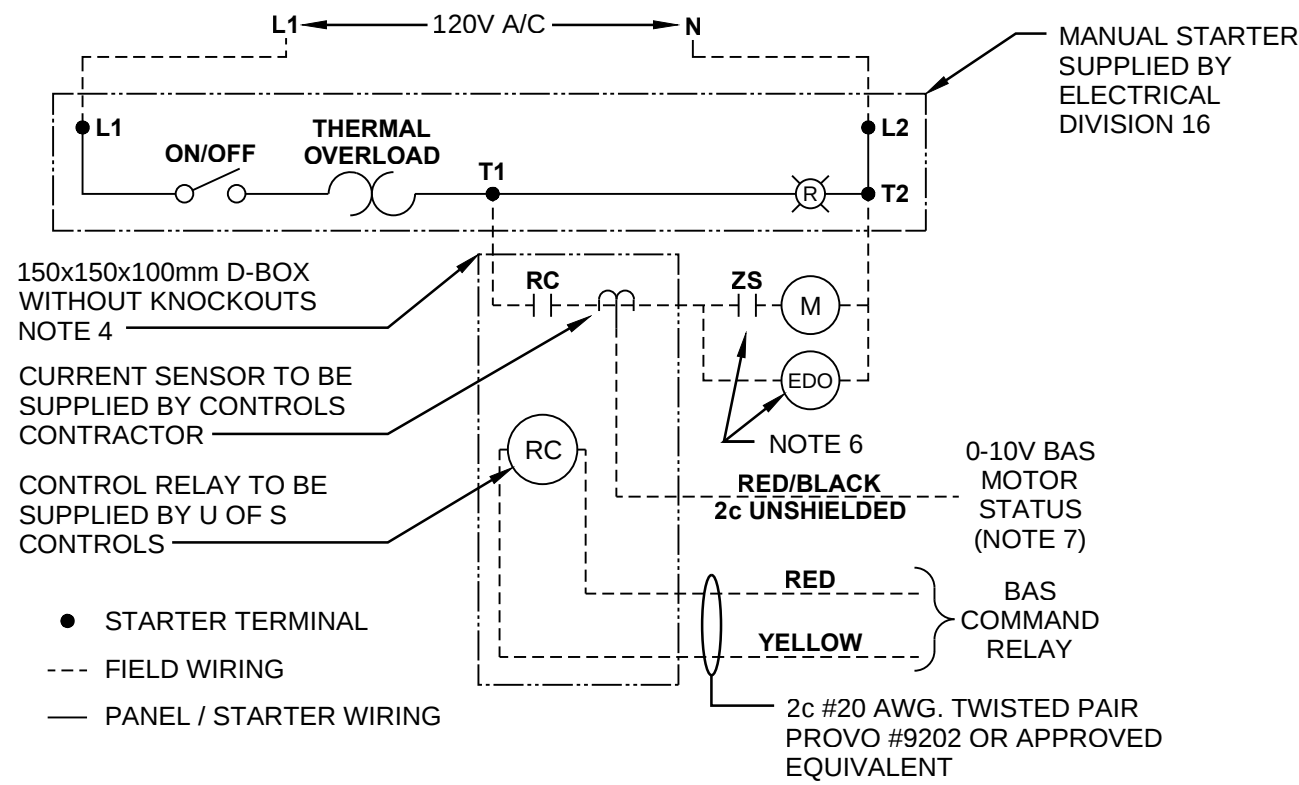
Project

ELECTRICAL DETAILS

SINGLE PHASE STARTER

Title
MULTIPLE USE, STEAM FORCE
FLOW SCHEMATICS, AND
CONTROL PANEL LAYOUT

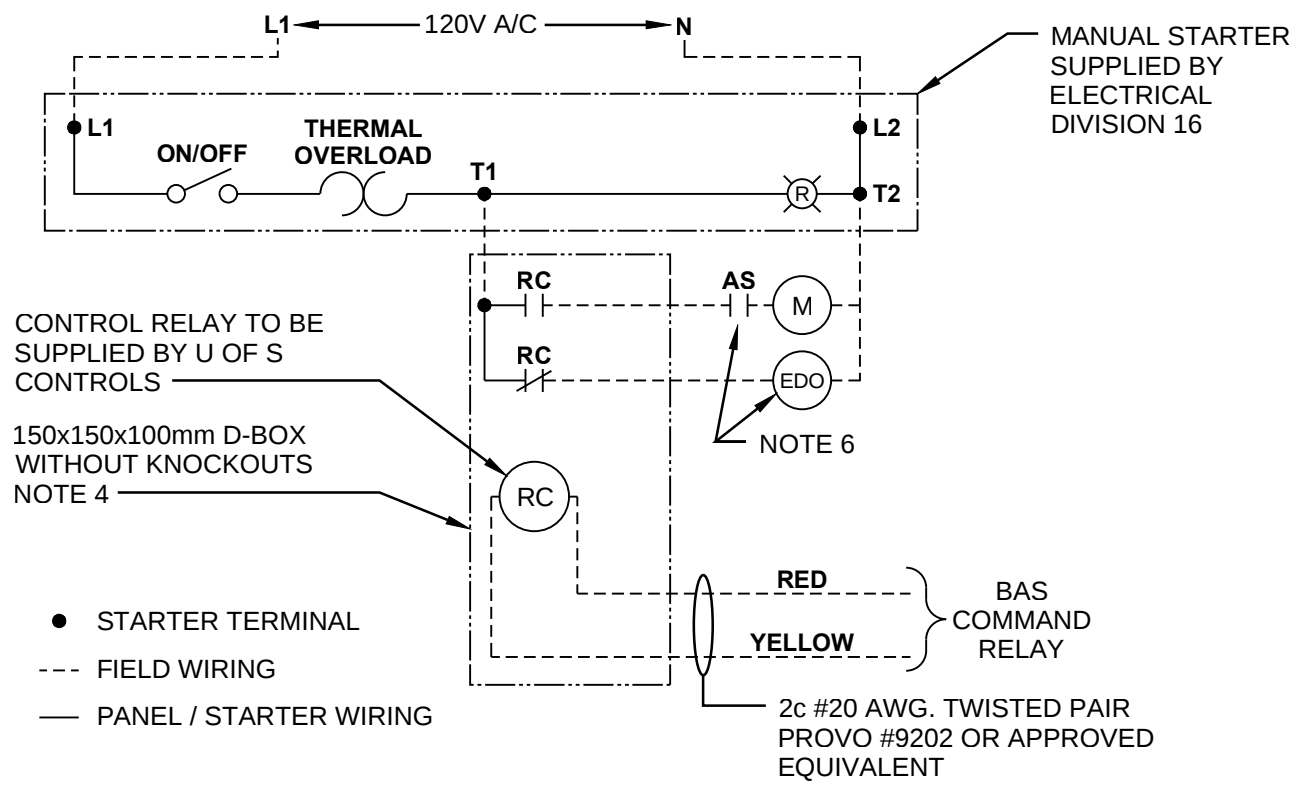
Dwn. D. DUBOWSKI	Chkd. D. BALIAD	Dsgn. K. LEEDAHL
Project No.		Scale N/A
UofS Drawing No.		Date 16-PCT-2025
Drawing No. E22	Sheet 1 OF 1	Revision 0



NOTES:

- MANUAL MOTOR STARTER SCHEMATIC IS TO BE USED AS REFERENCE FOR 120V SINGLE PHASE, FRACTIONAL HORSEPOWER MOTORS ONLY (1/2 H.P. MAXIMUM). TYPICAL APPLICATIONS ARE, BUT NOT LIMITED TO, HOT WATER GLYCOL FORCE FLOW HEATERS, UNIT HEATERS, SMALL DEDICATED VENTILATION SYSTEMS, PUMPS, ETC. ACCEPTABLE MANUFACTURER: SCHNEIDER SQUARE D MODEL No. #2510FG5P.
- THERMAL OVERLOAD TO BE SIZED AS REQUIRED FOR MOTOR LOAD. STARTER SHALL BE NEMA RATED AND LOCKABLE IN THE OFF POSITION.
- RELAY CONTACT (RC) IS A HORSEPOWER RATED RELAY WHICH IS SUPPLIED BY U OF S CONTROLS. RELAY IS TO BE INSTALLED BY CONTROLS CONTRACTOR AND LOCATED ADJACENT TO MOTOR LOCATION UNLESS SPECIFIED OTHERWISE.
- INSTALLATION OF D-BOX AND WIRING FROM RELAY (RC) DRY CONTACTS TO STARTER AND MOTOR ARE TO BE COMPLETED BY ELECTRICAL DIVISION 16. LOCATION OF D-BOX TO BE COORDINATED WITH CONTROLS CONTRACTOR. CONTROLS WIRING TO RELAY COIL TO BE COMPLETED BY CONTROLS DIVISION. REFER TO ELECTRICAL DETAIL E/39B FOR LAYOUT INFORMATION.
- BAS DENOTES BUILDING AUTOMATION SYSTEM, WHICH IS MONITORED AND CONTROLLED BY OWNER.
- EDO DENOTES ELECTRIC DAMPER OR VALVE OPERATOR. ZS DENOTES END SWITCH (THIS OPTION MAY BE REQUIRED IN FAN APPLICATIONS). CONFIRM WITH CONTROLS DIVISION BEFORE INSTALLATION.
- USE OF CURRENT SENSOR IS NOT REQUIRED FOR FORCE FLOW AND UNIT HEATER APPLICATIONS.

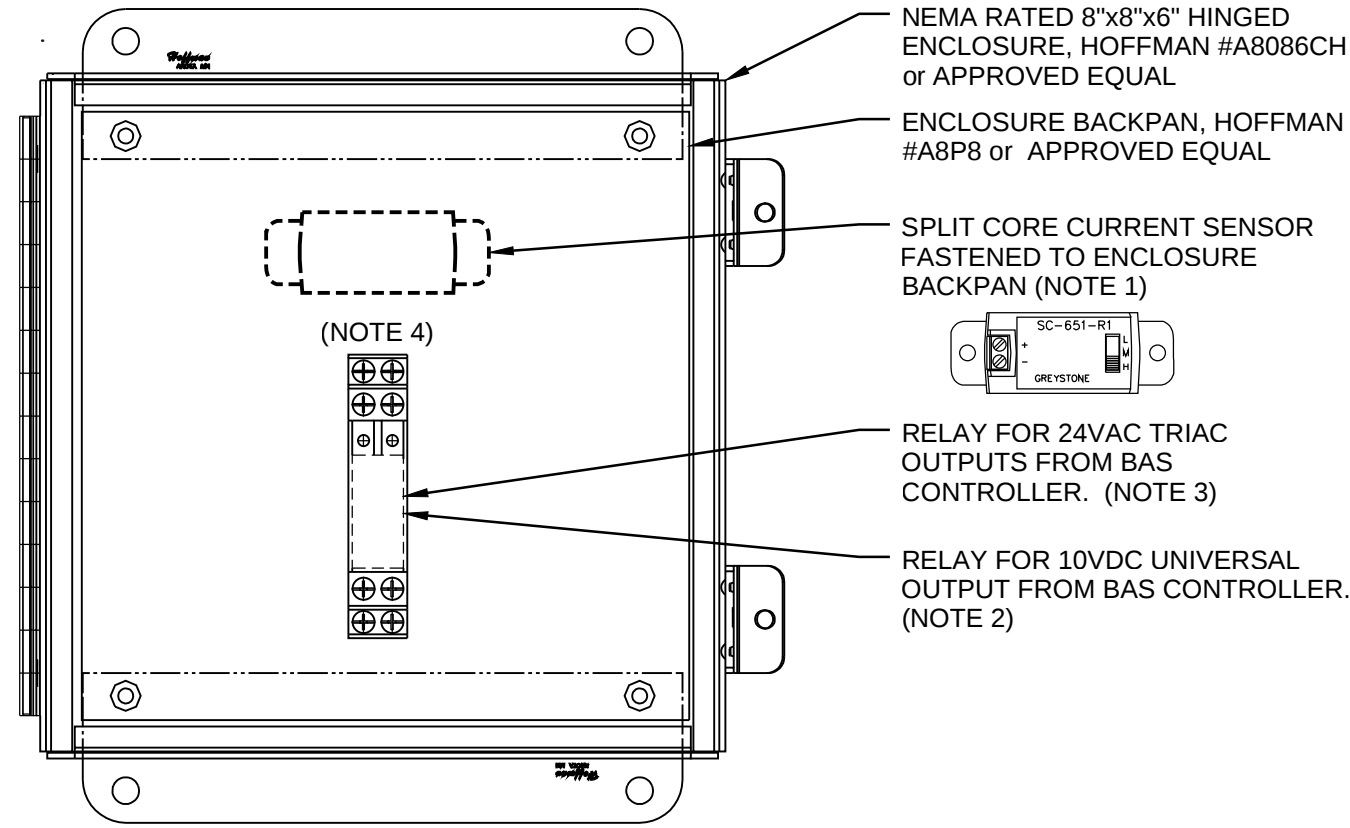
1 1 PHASE MANUAL STARTER
MULTIPLE USE SCHEMATIC



NOTES:

- MANUAL MOTOR STARTER SCHEMATIC IS TO BE USED AS REFERENCE FOR 120V SINGLE PHASE, FRACTIONAL HORSEPOWER MOTORS ONLY (1/2 H.P. MAXIMUM). TYPICAL APPLICATIONS ARE STEAM TYPE FORCE FLOW HEATERS. ACCEPTABLE MANUFACTURER: SCHNEIDER SQUARE D MODEL No. #2510FG5P.
- THERMAL OVERLOAD TO BE SIZED AS REQUIRED FOR MOTOR LOAD. STARTER SHALL BE NEMA RATED AND LOCKABLE IN THE OFF POSITION.
- RELAY CONTACT (RC) IS A HORSEPOWER RATED RELAY WHICH IS SUPPLIED BY U OF S CONTROLS. RELAY IS TO BE INSTALLED BY CONTROLS CONTRACTOR AND LOCATED ADJACENT TO MOTOR LOCATION UNLESS SPECIFIED OTHERWISE.
- INSTALLATION OF D-BOX AND WIRING FROM RELAY (RC) DRY CONTACTS TO STARTER AND MOTOR ARE TO BE COMPLETED BY ELECTRICAL DIVISION 16. LOCATION OF D-BOX TO BE COORDINATED WITH CONTROLS CONTRACTOR. CONTROLS WIRING TO RELAY COIL TO BE COMPLETED BY CONTROLS DIVISION. REFER TO ELECTRICAL DETAIL E/39B FOR LAYOUT INFORMATION.
- BAS DENOTES BUILDING AUTOMATION SYSTEM, WHICH IS MONITORED AND CONTROLLED BY OWNER.
- EDO DENOTES NORMALLY OPEN ELECTRIC VALVE OPERATOR AND AS DENOTES STEAM FORCE FLOW AQUASTAT. THIS OPTION IS REQUIRED FOR STEAM TYPE FORCE FLOW APPLICATIONS. CONFIRM WITH CONTROLS DIVISION BEFORE INSTALLATION.

2 1 PHASE MANUAL STARTER
STEAM FORCE FLOW SCHEMATIC



NOTES:

- SPLIT CORE CURRENT SENSOR SHALL BE SELECTABLE FOR 0-20/40/60 AMPS. SIGNAL OUTPUT 0-10VDC. 100A/60C MAXIMUM INPUT. SCREW OR DIN RAIL MOUNTING. APPROVED MANUFACTURER: GREYSTONE #SC-651-R1. (NOT REQUIRED FOR FORCE FLOW AND UNIT HEATER APPLICATIONS)
- CONTROL RELAY FOR 10V DC UNIVERSAL OUTPUTS SHALL BE RATED FOR 1/2 H.P. @ 120V AC (N/O CONTACT) AND 1/3 H.P. @ 120V AC (N/C CONTACT). 12V DC CONTROL VOLTAGE. APPROVED MANUFACTURER: PHOENIX CONTACT #REL-MR-12DC/21 HC-2961309 c/w #PRI-BSC2/2X21-2833518 RELAY BASE.
- CONTROL RELAY FOR 24V AC TRIAC OUTPUTS SHALL BE RATED FOR 1/2 H.P. @ 120V AC (N/O CONTACT) AND 1/3 H.P. @ 120V AC (N/C CONTACT). 24 V AC CONTROL VOLTAGE. APPROVED MANUFACTURER: PHOENIX CONTACT #REL-MR-24AC/21 HC-2961406 C/W #PRI-BSC2/2X21-2833518 RELAY BASE.

3 BAS COMMAND SYSYTEM
CONTROL PANEL LAYOUT

For Reference

W:\PMO\PMO_Public\Electrical Library\Details\Revised Details\E24 - Generator Temperature Control(12JAN2026).dwg ; Monday, January 12, 2026 4:05:34 PM ; DWG To PDF.pc3

Tabloid (279.4x431.8mm)

1 REMOTE RADIATOR

GENERATOR TEMPERATURE CONTROL

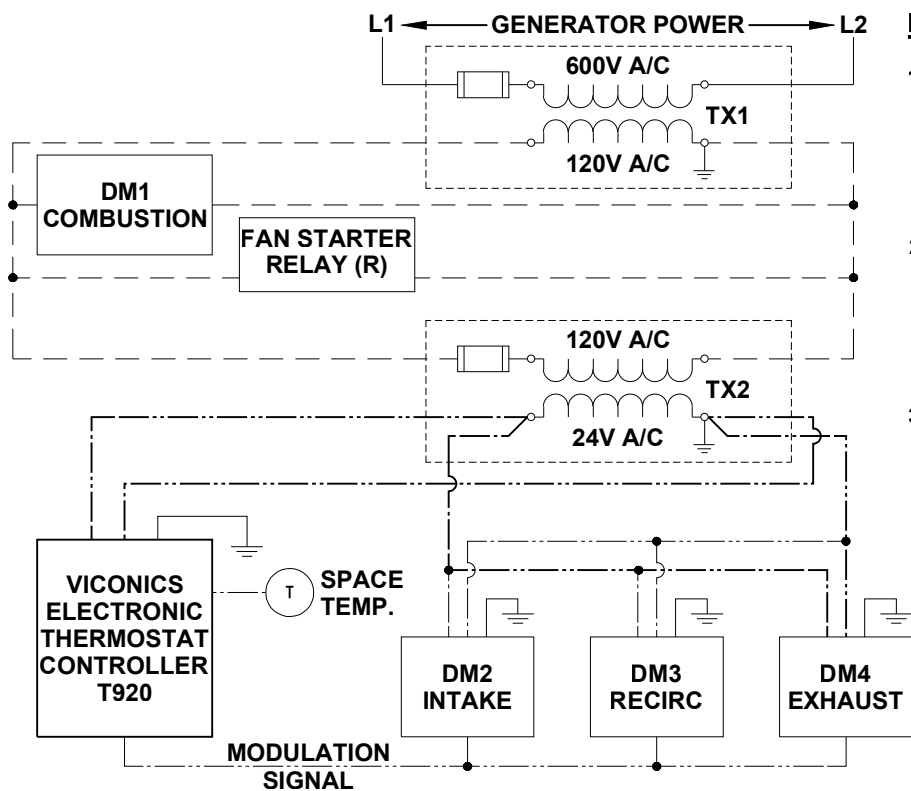
0	12-JAN-26	ISSUED FOR REFERENCE	DMB
REV.	DATE	DESCRIPTION	APP.



PROJECT NAME
ELECTRICAL DETAILS
GENERATOR TEMPERATURE
DRAWING NAME
GENERATOR DRIVEN AND
REMOTE RADIATOR TYPES

PROJ. FILE NO.
DRAWN BY D. DUBOWSKI
APPROVED BY G. POOLE
DATE 15-OCT-2025

DRAWING NO.
E/24
SCALE N/A
SHEET 1 OF 1

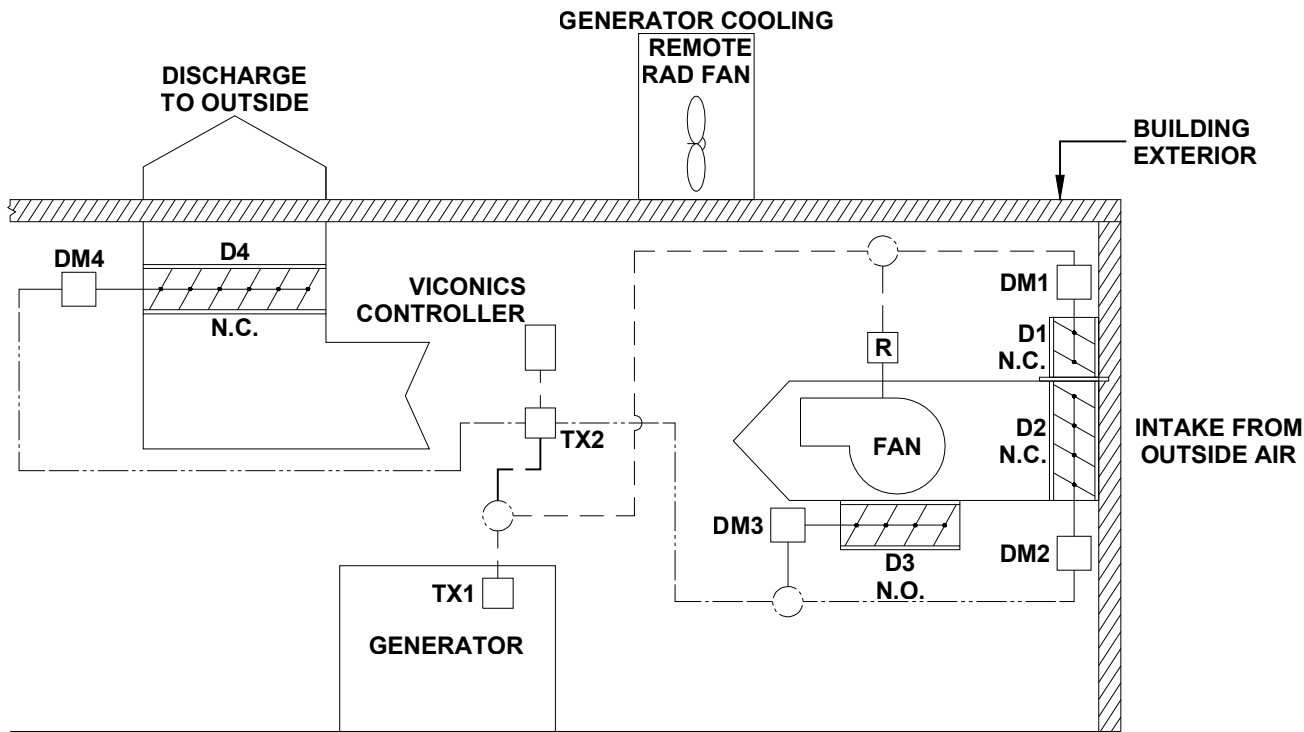


NOTES:

- BOTH 600/120VAC & 120/24VAC TRANSFORMERS TO BE SUPPLIED BY OWNER. XFMR INSTALLATIONS, 600V AND ALL ASSOCIATED 120V WIRING TO BE COMPLETED BY ELECTRICAL CONTRACTOR.
- DAMPER ACTUATORS, RELAY AND CONTROLLER TO BE SUPPLIED BY OWNER. ASSOCIATED 24VAC WIRING AND ACTUATOR INSTALLATION TO BE COMPLETED BY MECHANICAL CONTRACTOR.
- COMPONENT DESIGNATIONS ARE FOR REFERENCE ONLY.

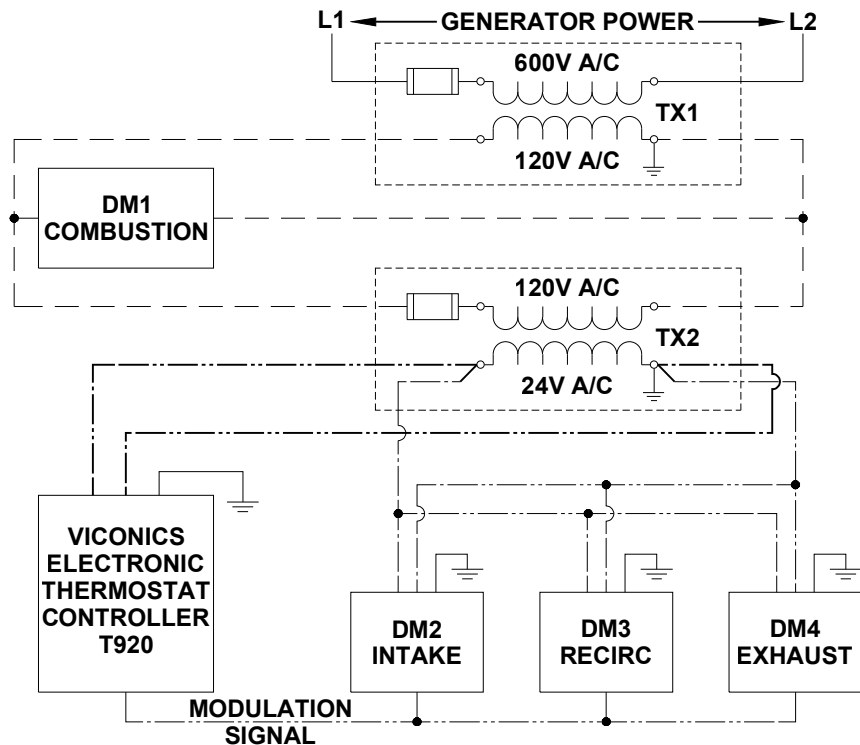
LEGEND

- 120VAC POWER WIRING - BY ELECTRICAL CONTRACTOR
- 24VAC CONTROL WIRING - BY MECHANICAL CONTRACTOR



2 GENERATOR DRIVEN

GENERATOR TEMPERATURE CONTROL

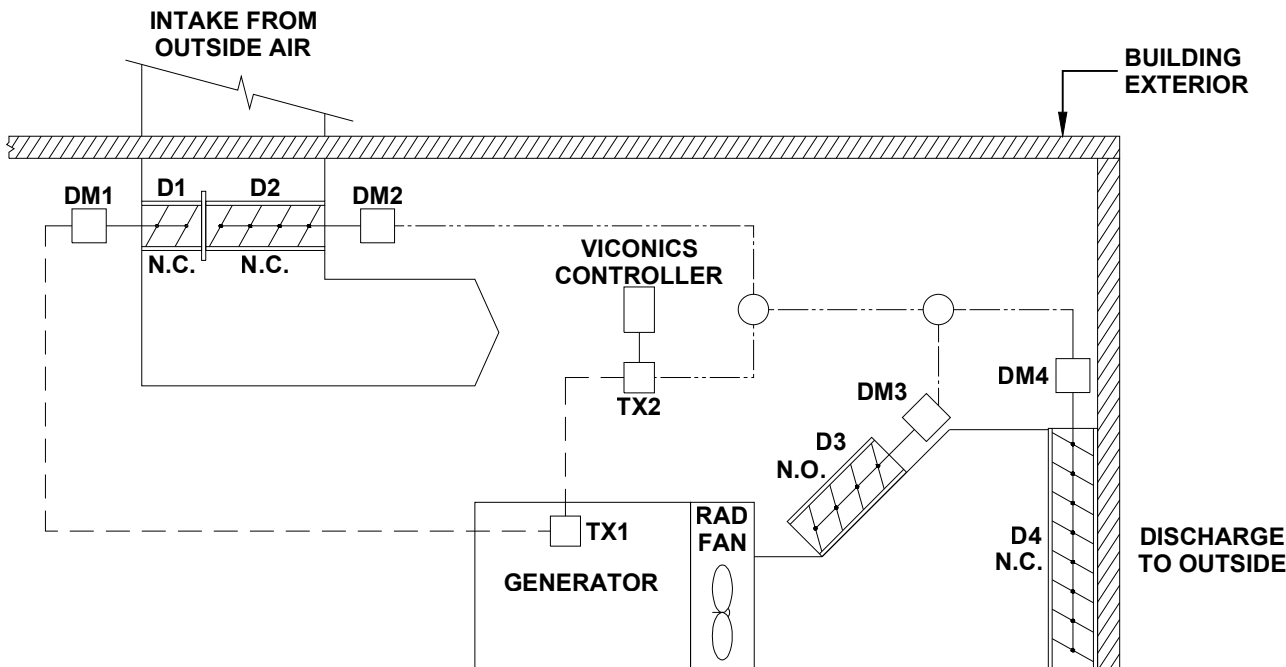


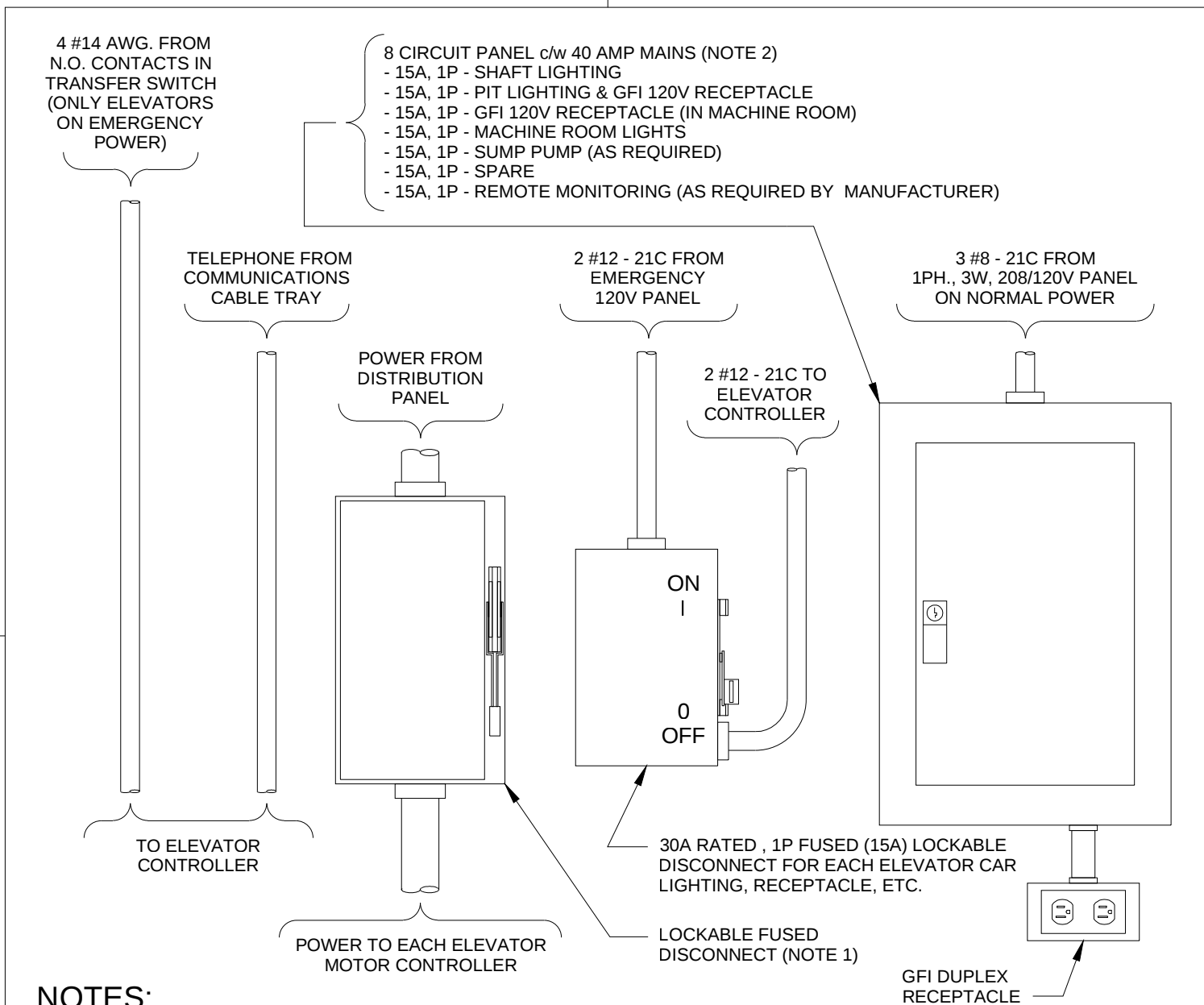
NOTES:

- BOTH 600/120VAC & 120/24VAC TRANSFORMERS TO BE SUPPLIED BY OWNER. XFMR INSTALLATIONS, 600V AND ALL ASSOCIATED 120V WIRING TO BE COMPLETED BY ELECTRICAL CONTRACTOR.
- DAMPER ACTUATORS AND CONTROLLER TO BE SUPPLIED BY OWNER. ASSOCIATED 24VAC WIRING AND ACTUATOR INSTALLATIONS TO BE COMPLETED BY MECHANICAL CONTRACTOR.
- COMPONENT DESIGNATIONS ARE FOR REFERENCE ONLY.

LEGEND

- 120VAC POWER WIRING - BY ELECTRICAL CONTRACTOR
- 24VAC CONTROL WIRING - BY MECHANICAL CONTRACTOR





NOTES:

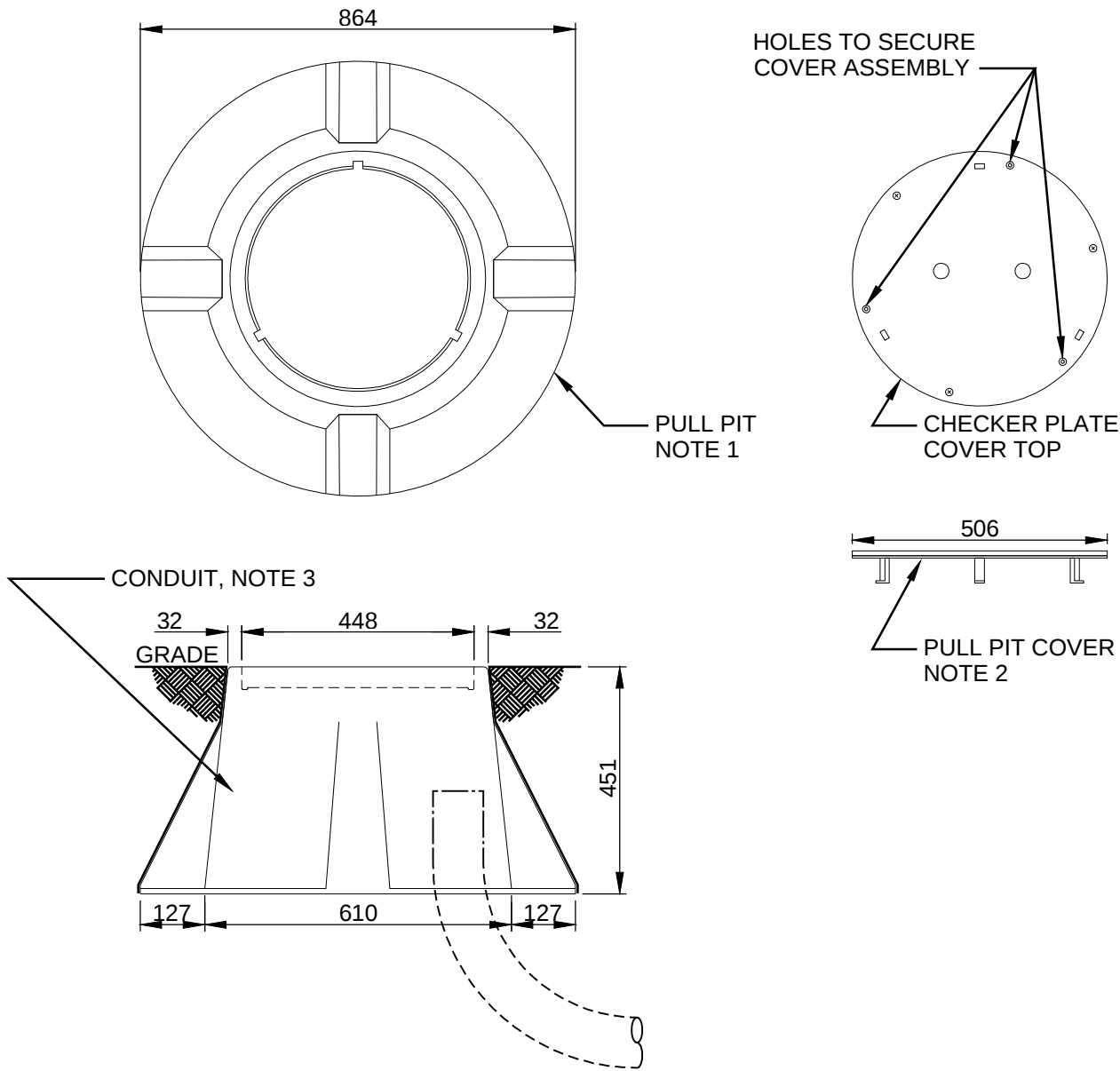
1. NORMAL OR EMERGENCY POWER SUPPLY FOR ELEVATOR SYSTEM TO BE CONFIRMED BEFORE INSTALLATION. DISCONNECT SWITCHES FOR ELEVATORS WITH ADDITIONAL POWER SOURCES ON THE LOAD SIDE OF THE DISCONNECT SHALL BE EQUIPPED WITH MECHANICALLY INTERLOCKED AUXILIARY CONTACTS TO THE REQUIREMENTS OF CEC SECTION 38. PROVIDE BOTH NORMALLY OPEN (NO) AND NORMALLY CLOSED (NC) CONTACTS.
2. FOR ELEVATORS WITH NO MACHINE ROOM, DELETE 8 CIRCUIT PANEL. FEED SHAFT LIGHTING, CONTROL CLOSET/ROOM LIGHTING AND LOCAL RECEPTACLE FROM SAME CIRCUIT FROM NEAREST BUILDING NORMAL POWER PANEL. FEED PIT LIGHTING AND GFI RECEPTACLE FROM SAME CIRCUIT FROM NEAREST BUILDING NORMAL POWER PANEL. FEED SUMP PUMP FROM NEAREST BUILDING NORMAL POWER PANEL AS REQUIRED.

0	ISSUED FOR REFERENCE	LJD	03-FEB-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN		DATE	30-OCT-2012	SCALE	N.T.S.
ELECTRICAL DETAILS ELEVATOR DISTRIBUTION ELECTRICAL ELEVATION		DRAWN BY	D. DUBOWSKI	E / 26 DRAWING NO.	
		CHECKED BY	K. LEEDAHL		
		APPROVED BY	K. LEEDAHL		

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Tabloid (279.4x431.8mm)



NOTES:

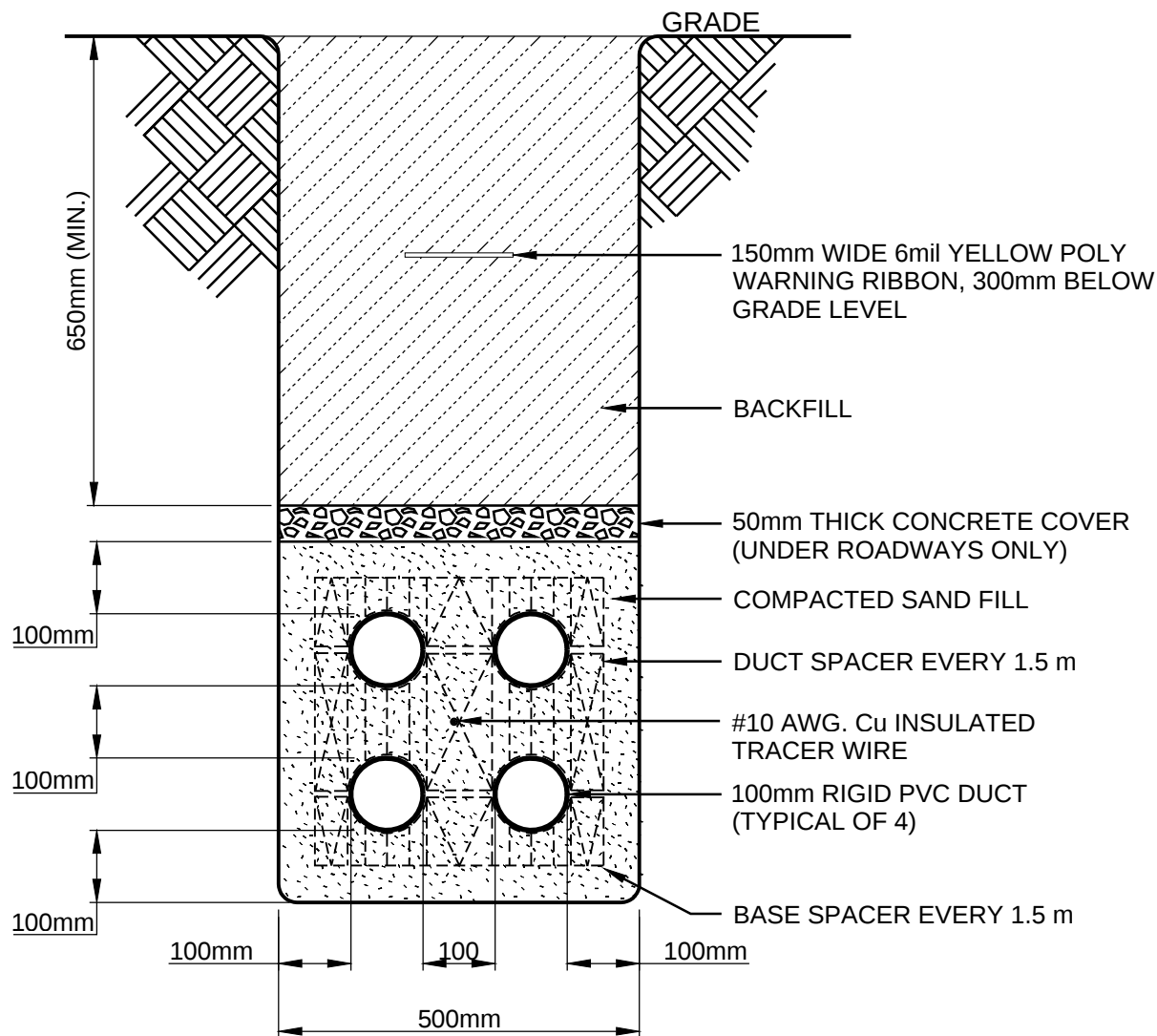
- PULL PIT TO BE CENTURY PLASTICS LTD. CPL-400 OR APPROVED EQUIVALENT.
- PULL PIT COVER TO BE GALVANIZED METAL WITH ALUMINUM CHECKER TOP PLATE. PROVIDE THREE TAMPER PROOF TAPER HEAD SCREWS TO SECURE COVER ASSEMBLY TO PULL PIT.
- CONDUIT TO BE 100mm SCHEDULE 40 PVC MINIMUM. CAP EMPTY CONDUIT ENDS AFTER INSTALLATION. SEAL CONDUITS WITH DUCT SEAL AFTER WIRE(S)/CABLE(S) ARE INSTALLED.

1 COMMUNICATION PULL PIT

LAYOUT DETAIL

GENERAL NOTES:

- FOR ADDITIONAL INFORMATION REFERENCE THE FOLLOWING ELECTRICAL SPECIFICATION SECTIONS:
 - SECTION 260500: COMMON WORK RESULTS FOR ELECTRICAL
 - SECTION 260543: UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS
 - SECTION 260526: GROUNDING AND BONDING
 - SECTION 260553: ELECTRICAL IDENTIFICATION
 - SECTION 336573: CONCRETE ENCASED DUCT BANKS AND MANHOLES



2 COMMUNICATION DUCT

TRENCH SECTION

REV.	DATE	DESCRIPTION	APP.
0	08-JAN-26	ISSUED FOR REFERENCE	DMB



UNIVERSITY OF
SASKATCHEWAN

PROJECT NAME
**ELECTRICAL DETAILS
COMMUNICATION SYSTEM**
DRAWING NAME
**PULL PIT LAYOUT AND
DUCT TRENCH SECTION**

PROJ. FILE NO.
DRAWN BY D. DUBOWSKI
APPROVED BY G. POOLE
DATE 15-OCT-2025

DRAWING NO.
E/27
SCALE N/A
SHEET 1 OF 1

305mm ALUM. VENTED
CABLE TRAY MOUNTED
AT 2300 ABOVE FLOOR

1220x1220x19mm PLYWOOD MOUNTED AT 2135mm
ABOVE FLOOR TO TOP, NOTE 13

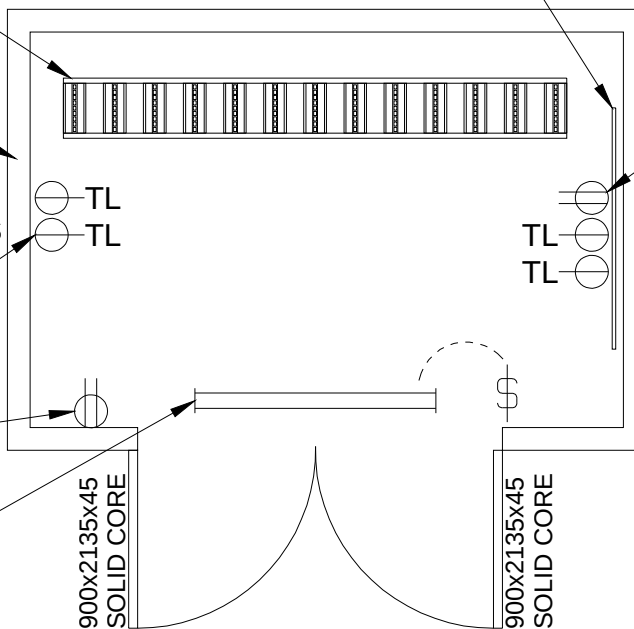
STEEL STUD WALL WITH
1 1/2" DRYWALL EITHER
SIDE (2000x3000 INSIDE)

4 L6-20R TWIST-LOK RECEPTACLES
2 ON EACH SIDE OF CLOSET ON
SEPARATE CIRCUITS, NOTE 5

DUPLEX RECEPTACLE
ON UTILITY POWER
MOUNTED 610mm A.F.F.

LED STRIP FIXTURE
WALL MOUNTED ABOVE
THE DOOR

MOUNT ON
BACKBOARD
NORMAL POWER



COMMUNICATIONS NETWORK CLOSET (2 RACK LAYOUT)

NOTES:

1. ROOM SIZE (3M x 2M) IS FOR 2 EQUIPMENT RACKS WITH 192 CONNECTIONS TOTAL. IF CLOSET IS TO SERVICE MORE CONNECTIONS, SIZE SHOULD BE INCREASED ACCORDINGLY.
2. ADDITIONAL ROOM SPACE MAY BE REQUIRED IN BUILDINGS WHERE THE CAMPUS BUILDING CARD ACCESS SHALL BE IMPLEMENTED.
3. KEYING SHALL BE MECHANICAL MASTER.
4. KEYED DOOR TO BE ON THE SAME SIDE OF CLOSET AS THE LIGHT SWITCH.
5. INSTALL TWIST-LOK RECEPTACLES AT 610mm ABOVE FLOOR AND APPROXIMATELY 1220mm AWAY FROM BACK WALL. POWER FOR 2 TWIST-LOK RECEPTACLES TO BE PROVIDED FROM NEAREST 120/208V NORMAL POWER PANEL AND POWER FOR 2 RECEPTACLES TO BE PROVIDED FROM NEAREST 120/208V EMERGENCY POWER PANEL, ONE ON EACH SIDE. EACH RECEPTACLE TO BE INSTALLED IN A SINGLE GANG DEVICE BOX.
6. DOOR GRILLS AS REQUIRED.
7. MINIMUM HEADROOM HEIGHT OF 2700mm.
8. FLOOR FINISH TO BE VINYL TILE, NON-SLIP PAINT OR TO MATCH ADJACENT CORRIDOR OR ROOM, NO CARPET.
9. WALL FINISH TO BE PAINTED TO MATCH ADJACENT WALL.
10. ROOM NUMBER ON THE DOOR OR OTHER APPROPRIATE LOCATION IS THE ONLY SIGNAGE REQUIRED.
11. NO FINISHED CEILING IN CLOSET.
12. CLOSET SHOULD BE LOCATED OFF A CORRIDOR AND IN SUCH A LOCATION THAT IT IS NO FURTHER THAN 70M HORIZONTAL DISTANCE FROM THE MOST DISTANT OUTLET IT SERVES.
13. PLYWOOD BACKBOARD TO BE PROVIDED ONLY IN BUILDINGS WHERE ANALOG TELEPHONE IS UTILIZED.

0	ISSUED FOR REFERENCE	LJD	03-FEB-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN

DATE **20-JAN-2014**

SCALE **N.T.S.**

ELECTRICAL DETAILS

DRAWN BY **D. DUBOWSKI**

E

DATA NETWORK
SERVER CLOSET



CHECKED BY **K. LEEDAHL**

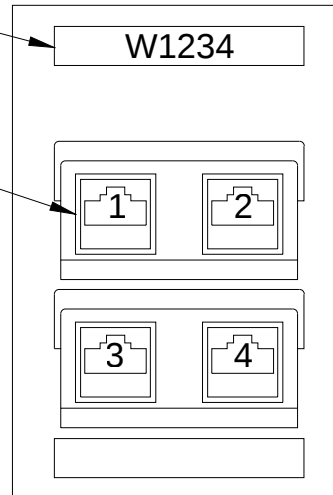
APPROVED BY .

DRAWING NO.

28

DATA OUTLET
IDENTIFICATION
LABEL

DATA CONNECTOR(S)
(TYPICAL)



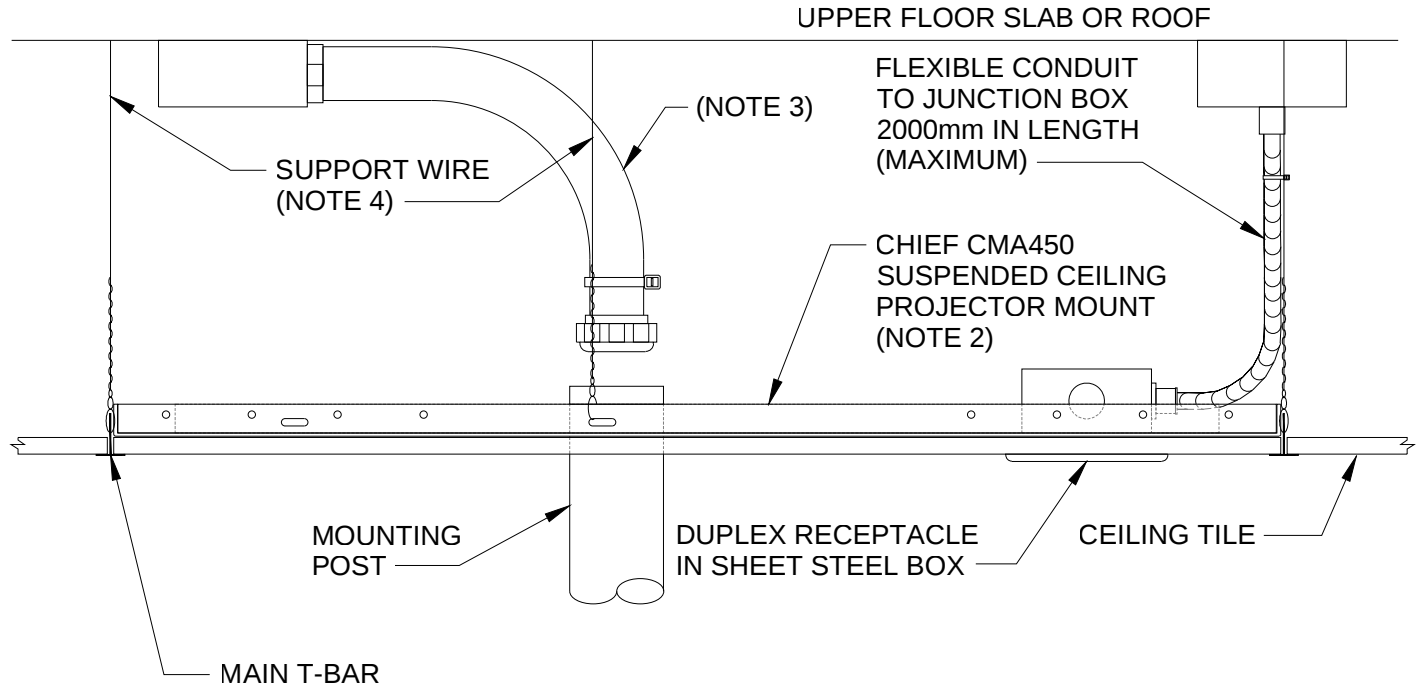
WALL PLATE LAYOUT

NOTES:

1. CONNECTORS SHALL BE INSTALLED IN ORDER 1, 2, 3, 4.
2. OUTLET IDENTIFICATION AS PROVIDED BY U OF S ICT.
3. LABEL CABLES AT OUTLET WITH OUTLET IDENTIFICATION AND CONNECTOR POSITION 1, 2, 3, 4. EX. W1234-3.
4. LABEL CABLE AT CLOSET WITH OUTLET IDENTIFICATION, CONNECTOR POSITION AND ROOM NUMBER. EX. W1234-3 (109.1)

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN		DATE	02-OCT-2019	SCALE	N.T.S.
ELECTRICAL DETAILS		DRAWN BY	D. DUBOWSKI	E	
		CHECKED BY	K. LEEDAHL	/ 29	
		APPROVED BY	.	DRAWING NO.	
DATA NETWORK WALL PLATE LAYOUT					



NOTES:

1. ELECTRICAL DETAIL IS FOR CEILING MOUNTED RECEPTACLE, PROJECTOR, AND A/V CABLE LOCATION IN T-BAR CEILINGS, USED FOR MAJORITY OF CEILING SPACE APPLICATIONS (RETURN PLENUM OR NON RETURN PLENUM).
2. 2' x 2' MOUNTING PLATE FOR VIDEO PROJECTOR TO BE PROVIDED BY U OF S EMAP DIVISION. THE ACTUAL WEIGHT OF THE VIDEO PROJECTOR MAY VARY AND IS TO BE CONFIRMED WITH U OF S EMAP BEFORE FINAL INSTALLATION.
3. LIQUID-TIGHT FLEX TO BE INSTALLED FROM CEILING SPACE MOUNTED JUNCTION BOX TO LOCATION ABOVE PROJECTOR MOUNTING POST. CONDUIT NIPPLE AND BUSHING TO BE INSTALLED AT END OF FLEX. SIZE OF CONDUIT, LIQUID-TIGHT FLEX AND LOCATIONS TO BE COORDINATED WITH U OF S EMAP DIVISION.
4. ADD SUPPORT WIRES TO T-BAR RAILS AND METAL MOUNTING PANEL AS DEEMED NECESSARY TO ACCOMMODATE VIDEO PROJECTOR AND CEILING WEIGHT.

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN

DATE **31-OCT-2025**

SCALE **N.T.S.**

ELECTRICAL DETAILS
SUSPENDED CEILING
AV PROJECTOR
MOUNTING DETAIL



DRAWN BY **D. DUBOWSKI**

E

CHECKED BY **K. BEREZOWSKI**

31

APPROVED BY **L. DOBSON**

DRAWING NO.

0	ISSUED FOR REFERENCE	DMB	12-JAN-2026
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Rev.	Description	Appd.	Date
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Permits / Seals

Project

ELECTRICAL DETAILS

OUTDOOR LIGHTING CONTROL

Title

PHOTOCELL, SOLAR TIMER, AND PC/ST CONVERSION LIGHTING CONTROLS

Dwn.

D. DUBOWSKI

Project No.

UofS Drawing M

16-PCT-2025

Drawing No.

E32



- ## 1) PHOTOCCELL CONTROL

NOTES:

- ## 2) PHOTOCCELL TO SOLAR TIMER CONVERSION

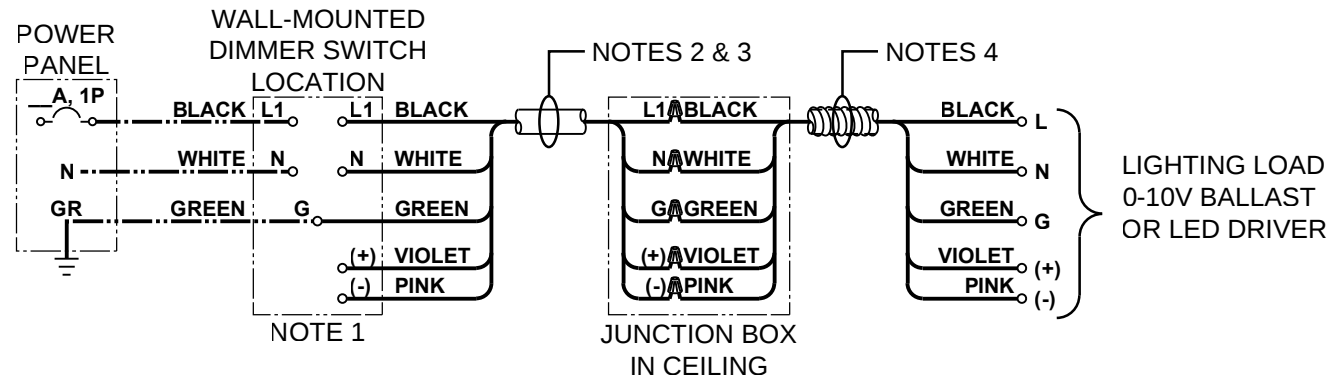
NOTES:

- ### 3) SOLAR TIMER CONTROL

WIRING SCHEMATIC

For Reference

A2 (420x594 mm) W:\OM_Electrical\OM_Electrical_Public\Electrical Library\Details\Revised Details\E33 - Office Lighting Controls(03FEB2026).dwg : Wednesday, February 4, 2026 10:39:35 AM : DWG To PDF.pc3

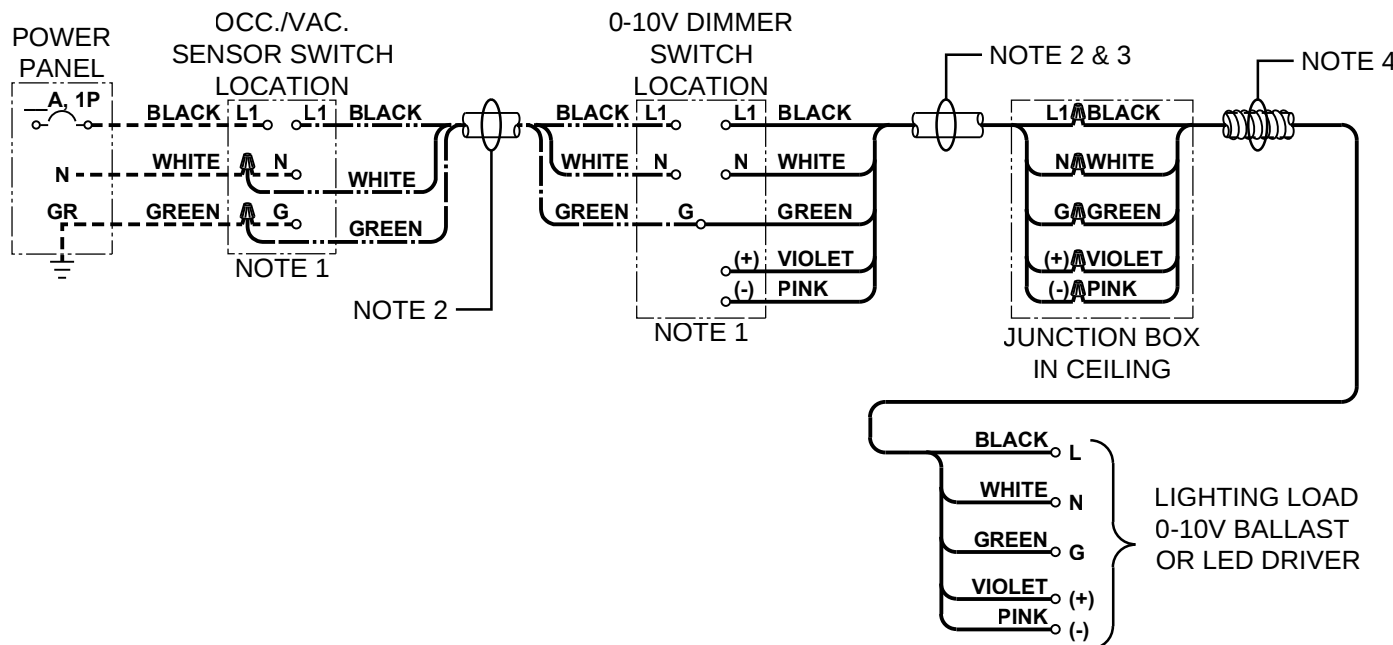


NOTES:

1. ACTUAL WIRING CONNECTIONS AT 0-10V DIMMER/SWITCH LOCATION ARE DEPENDANT UPON MANUFACTURER MAKE AND MODEL TYPE. REFER TO MANUFACTURER'S INFORMATION FOR PROPER CONNECTIONS. CONNECTIONS TO GROUND IN ABSENCE OF NEUTRAL CONDUCTOR WILL NOT BE ACCEPTABLE.
2. 120V POWER WIRING TO BE SINGLE CONDUCTOR #12 AWG. WIRE ROUTED IN EMT CONDUIT UNLESS SPECIFIED OTHERWISE. CONDUCTOR INSULATION TO BE RATED FOR 300V, 90°C (MINIMUM).
3. 0-10V SIGNAL WIRING TO BE SINGLE CONDUCTOR #14 AWG. WIRE ROUTED IN EMT CONDUIT UNLESS SPECIFIED OTHERWISE. CONDUCTOR INSULATION TO BE RATED FOR 300V, 90°C (MINIMUM).
4. BX CABLE BETWEEN JUNCTION BOX LOCATION AND FIXTURE TO BE ELECTRO CABLES ELECTRO-SMART SPC90 600V POWER & CONTROL SIGNAL CABLE WITH 2/C 14 AWG SBC POWER WIRES AND 2/C 16 AWG CONTROL SIGNAL WIRES. WIRES ARE JACKETED WITH XLPE INSULATION, ALUMINUM INTERLOCK ARMOUR, TEMPERATURE RATING 90°C WET / 90°C DRY, DESIGNED FOR PLENUM APPLICATIONS. MANUFACTURER No. 6XAAUS14-2C-16-2C.

1 0-10V DIMMING

WIRING DIAGRAM

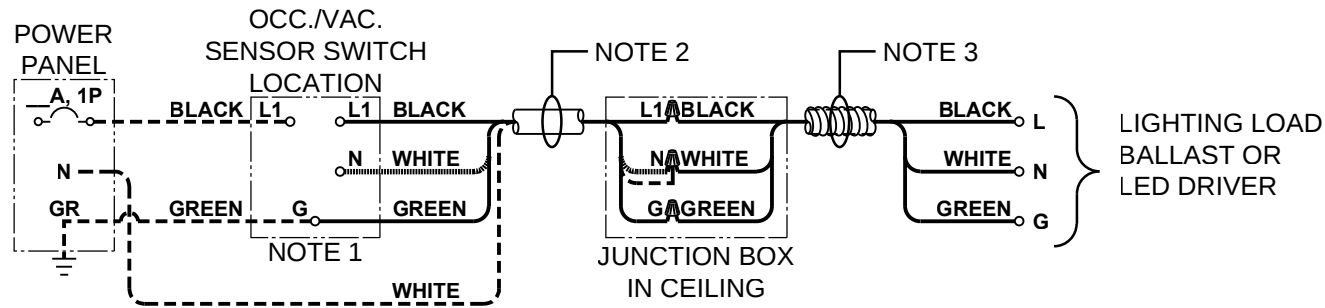


NOTES:

1. ACTUAL WIRING CONNECTIONS AT OCC./VAC. SENSOR SWITCH AND 0-10V DIMMER SWITCH MAY VARY AND ARE DEPENDANT UPON MANUFACTURER MAKE AND MODEL TYPE. REFER TO MANUFACTURER'S INFORMATION FOR PROPER CONNECTIONS. CONNECTIONS TO GROUND IN ABSENCE OF NEUTRAL CONDUCTOR WILL NOT BE ACCEPTABLE.
2. 120V POWER WIRING TO BE SINGLE CONDUCTOR #12 AWG. WIRE ROUTED IN EMT CONDUIT UNLESS SPECIFIED OTHERWISE. CONDUCTOR INSULATION TO BE RATED FOR 300V, 90°C (MINIMUM). PROVIDE A NEUTRAL CONDUCTOR BACK TO SWITCH IN LOCATIONS WHERE NO NEUTRAL CURRENTLY EXISTS. CONNECTIONS TO GROUND IN ABSENCE OF NEUTRAL CONDUCTOR WILL NOT BE ACCEPTABLE.
3. 0-10V SIGNAL WIRING TO BE SINGLE CONDUCTOR #14 AWG. WIRE ROUTED IN EMT CONDUIT UNLESS SPECIFIED OTHERWISE. CONDUCTOR INSULATION TO BE RATED FOR 300V, 90°C (MINIMUM).
4. BX CABLE BETWEEN JUNCTION BOX LOCATION AND FIXTURE TO BE ELECTRO CABLES ELECTRO-SMART SPC90 600V POWER & CONTROL SIGNAL CABLE WITH 2/C 14 AWG SBC POWER WIRES AND 2/C 16 AWG CONTROL SIGNAL WIRES. WIRES ARE JACKETED WITH XLPE INSULATION, ALUMINUM INTERLOCK ARMOUR, TEMPERATURE RATING 90°C WET / 90°C DRY, DESIGNED FOR PLENUM APPLICATIONS. MANUFACTURER No. 6XAAUS14-2C-16-2C.

3 0-10V DIMMING & OCC./VAC.SENSOR SWITCH

WIRING DIAGRAM

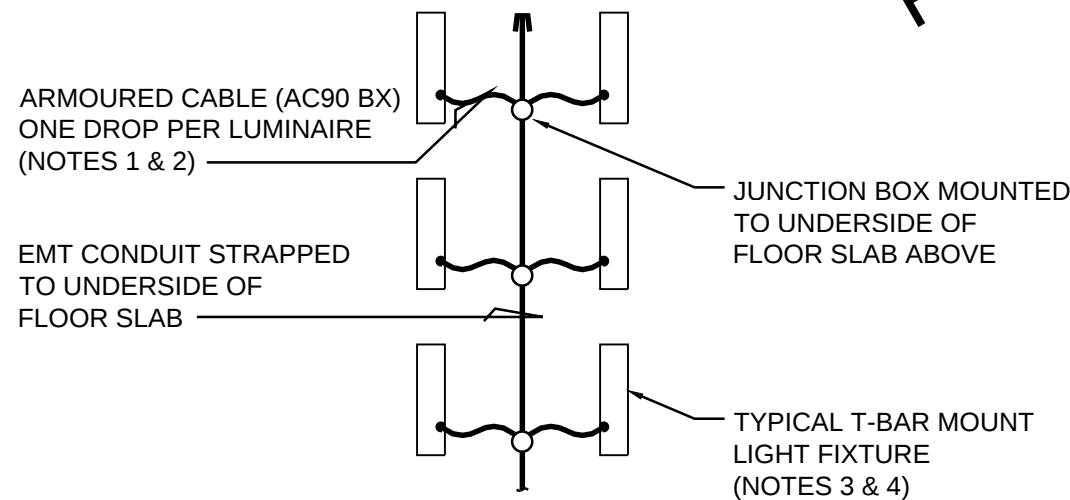


NOTES:

1. ACTUAL WIRING CONNECTIONS AT OCC./VAC. SENSOR SWITCH MAY VARY AND ARE DEPENDANT UPON MANUFACTURER MAKE AND MODEL TYPE. REFER TO THE MANUFACTURER'S INFORMATION FOR PROPER CONNECTIONS.
2. 120V POWER WIRING TO BE SINGLE CONDUCTOR #12 AWG. WIRE ROUTED IN EMT CONDUIT UNLESS SPECIFIED OTHERWISE. CONDUCTOR INSULATION TO BE RATED FOR 300V, 90°C (MINIMUM). PROVIDE A NEUTRAL CONDUCTOR BACK TO SWITCH IN LOCATIONS WHERE NO NEUTRAL CURRENTLY EXISTS. CONNECTIONS TO GROUND IN ABSENCE OF NEUTRAL CONDUCTOR WILL NOT BE ACCEPTABLE.
3. AC90 BX CABLE TO BE JACKETED WITH XLPE INSULATION, ALUMINUM INTERLOCK ARMOUR, TEMPERATURE RATING 90°C WET / 90°C DRY, DESIGNED FOR PLENUM APPLICATIONS WHERE APPLICABLE.

2 LINE VOLTAGE OCC./VAC. SENSOR SWITCH

WIRING DIAGRAM



NOTES:

1. EACH LUMINAIRE SHALL BE CONNECTED VIA A DEDICATED FLEXIBLE WHIP. DAISY-CHAINING OF LUMINAIRES IS NOT PERMITTED.
2. USE OF AC90 BX CABLE IS TYPICAL FOR T-BAR CEILING INSTALLATIONS. LENGTH BETWEEN JUNCTION BOX LOCATION AND FIXTURE TO BE 3 METRES (NO MORE, NO LESS) TO ALLOW FOR ANY FUTURE RELOCATION OF FIXTURE FROM IT'S INDICATED LOCATION. COIL EXCESS CABLE FOR A NEAT AND TIDY INSTALLATION.
3. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR FINAL CONNECTIONS TO LIGHT FIXTURE. SOME CIRCUMSTANCES MAY REQUIRE AN ADDED JUNCTION BOX AT FIXTURE TO ALLOW FOR SEPARATION OF 120V POWER AND 0-10V SIGNAL WIRING. CONFIRM WITH OWNER BEFORE FINAL INSTALLATION.
4. LIGHT FIXTURE SHOWN IS INDICATED AS A 1' x 4' SIZE FOR REFERENCE PURPOSES ONLY. REFER TO PROJECT RELATED LIGHT FIXTURE SCHEDULES FOR ACTUAL PHYSICAL DIMENSIONS, FIXTURE MAKE AND MODELS.

4 TYPICAL LUMINAIRE WIRING DETAIL

LAYOUT DIAGRAM



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110 Maintenance Road
Saskatoon SK
Canada S7N 5C5

Legend

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Permits / Seals

Project

ELECTRICAL DETAILS

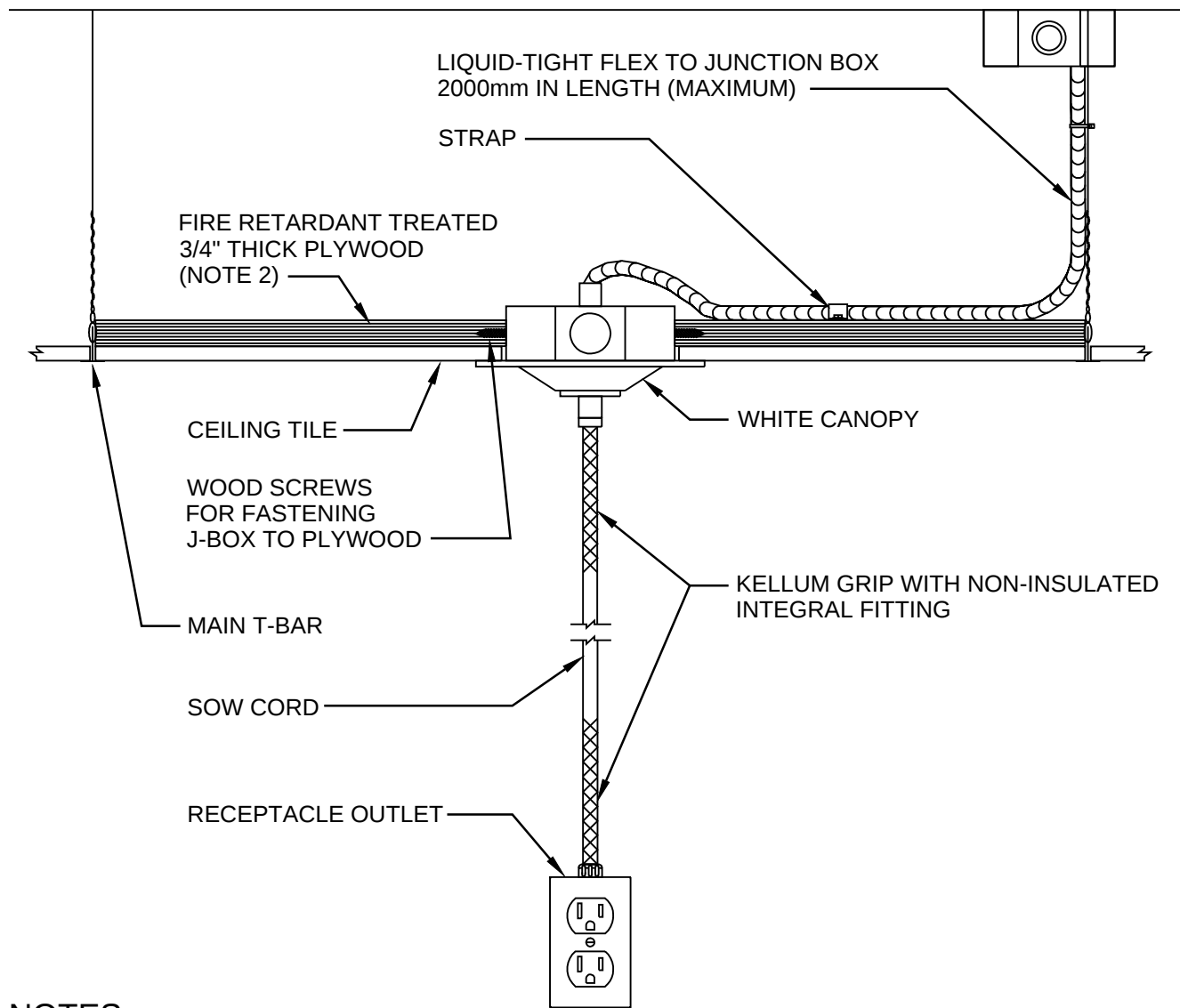
OFFICE LIGHTING CONTROL

Title

**0-10V DIMMING, OCCUPANCY
SWITCH, AND OCCUPANCY
SENSOR WIRING DIAGRAMS**

Dwn. D. DUBOWSKI	Chkd. G. POOLE	Dsgn. D. DUBOWSKI
Project No.	Scale As Noted	
UofS Drawing No.	Date 17-SEP-2025	
Drawing No. E33	Sheet 1 OF 1	Revision 0

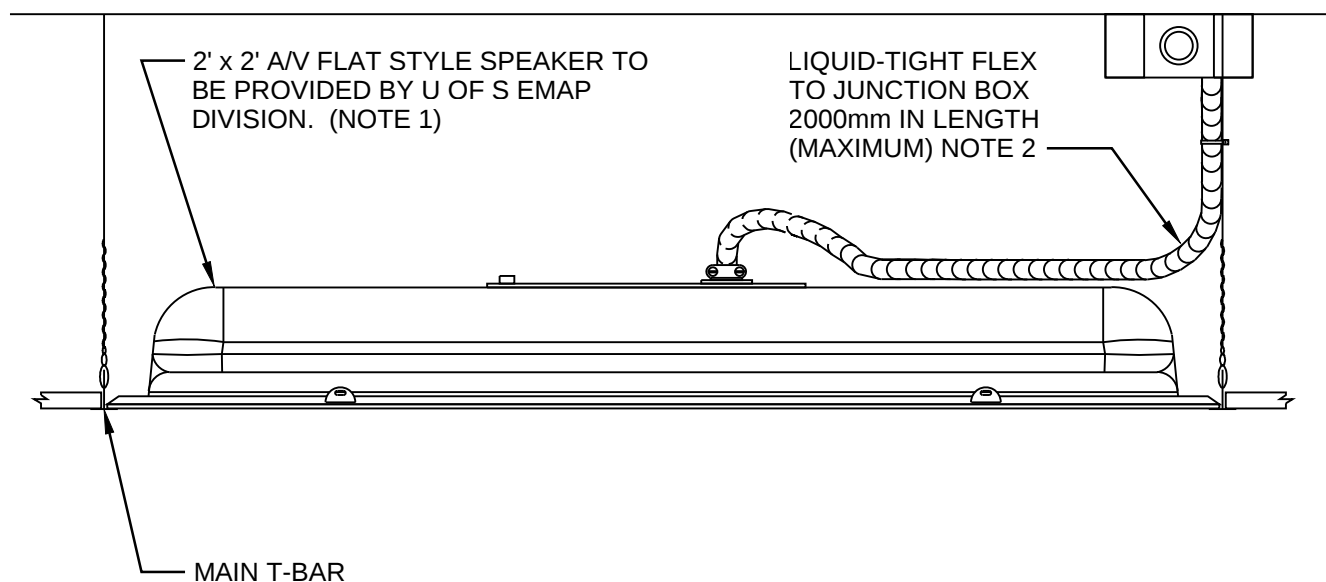
A2 (420x594 mm) W:\PMO\PMO_Public\Electrical Library\Details\Revised Details\E34 - Ceiling Mounted Devices(15JAN2026).dwg : Thursday, January 15, 2026 3:54:41 PM : DWG To PDF.pc3



NOTES:

1. MOUNTING DETAIL IS COMMON FOR CEILING MOUNTED DROP CORD RECEPTACLES, OR OTHER DEVICES REQUIRING ADDITIONAL CEILING SUPPORT WHEN MOUNTED IN T-BAR CEILING.
2. SUPPORT PLYWOOD TO BE 23 3/4" x 23 3/4" IN SIZE (MINIMUM). ANY REDUCTIONS TO THIS SIZE ARE NOT ACCEPTABLE UNLESS APPROVED BY U OF S ELECTRICAL ENGINEERING.

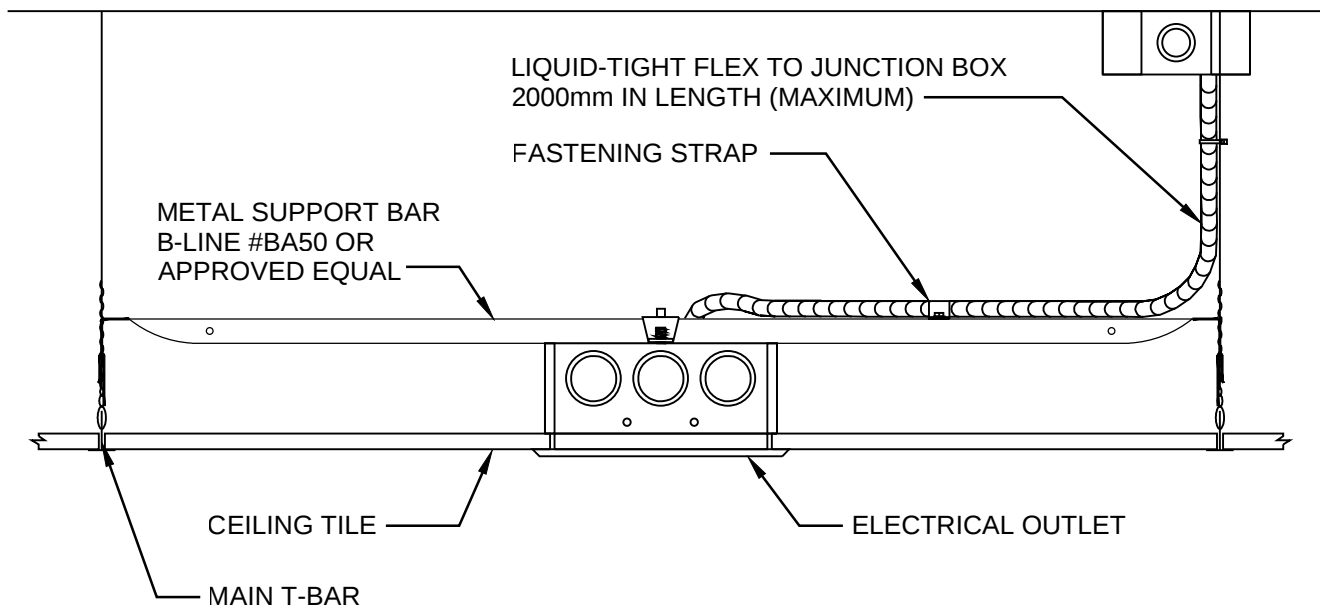
1 DROP CORD RECEPTACLE
T-BAR INSTALLATION DETAIL



NOTES:

1. FULL-RANGE FLAT FIELD SPEAKER c/w LOW PROFILE ENCLOSURE AND 70/100V TRANSFORMER. MANUFACTURER: EXTRON #FF 220T
1. REFER TO A/V DIVISION EQUIPMENT LAYOUT DRAWINGS FOR ACTUAL CEILING LOCATIONS AND ANY ADDITIONAL INFORMATION.

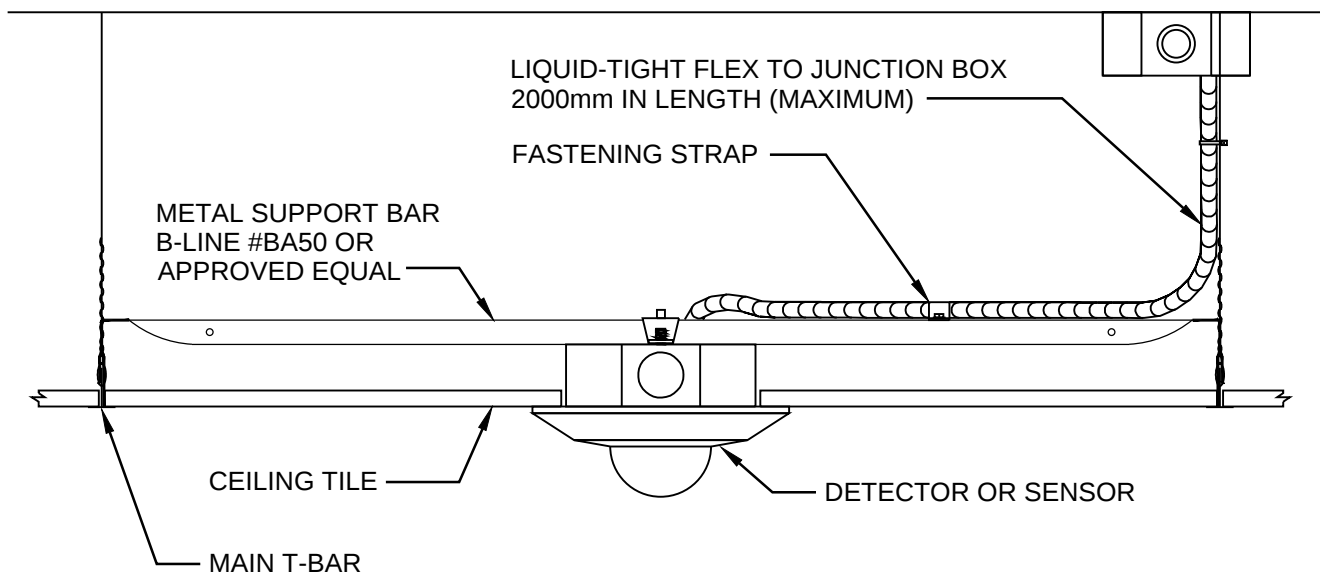
3 AUDIO/VIDEO SPEAKER
T-BAR INSTALLATION DETAIL



NOTES:

1. MOUNTING DETAIL IS COMMON FOR CEILING MOUNTED ELECTRICAL OUTLETS OR COMPUTER NETWORK CONNECTIONS REQUIRING A CEILING MOUNTED JUNCTION BOX IN T-BAR CEILING.
2. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM SUPPORT WEIGHT AND FASTENING METHODS.
3. ENSURE THE T-BAR CEILING IS DESIGNED TO SUPPORT LOADS ASSOCIATED WITH THIS TYPE OF INSTALLATION.

2 DUPLEX RECEPTACLE
T-BAR INSTALLATION DETAIL



NOTES:

1. MOUNTING DETAIL IS COMMON FOR CEILING MOUNTED OCCUPANCY, MOTION, HEAT OR SMOKE DETECTORS AND EXIT LIGHT FIXTURES OR OTHER DEVICES REQUIRING A CEILING MOUNTED JUNCTION BOX IN T-BAR CEILING.
2. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM SUPPORT WEIGHT AND FASTENING METHODS.
3. ENSURE THE T-BAR CEILING IS DESIGNED TO SUPPORT LOADS ASSOCIATED WITH THIS TYPE OF INSTALLATION.

4 MISCELLANEOUS DEVICES
T-BAR INSTALLATION DETAIL



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University Services Building
110 Maintenance Road
Saskatoon SK
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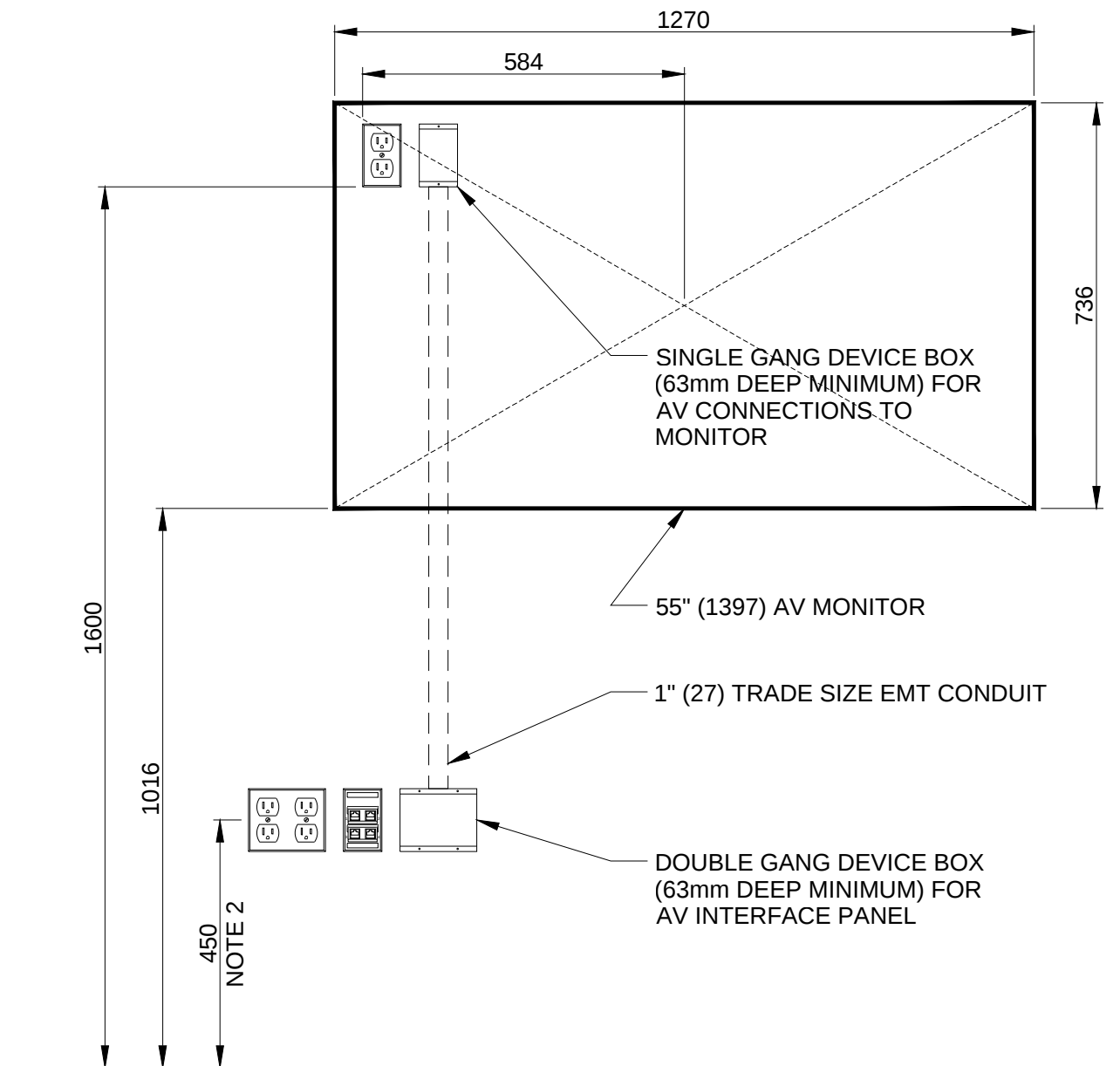
ELECTRICAL DETAILS

**T-BAR CEILING MOUNTED
DEVICES**

Title

**DROP CORD, DUPLEX
RECEPTACLE, A/V SPEAKER
AND MISCELLANEOUS DEVICES**

Dwn. D. DUBOWSKI	Chkd. G. POOLE	Dsgn. D. DUBOWSKI
Project No.	Scale As Noted	
UofS Drawing No.	Date 17-SEP-2025	
Drawing No. E34	Sheet 1 OF 1	Revision 0



FLOOR

NOTES:

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE.
2. DIMENSION SHOWN IS FOR USE ON A GENERAL WALL SPACE. WHERE THE USE WILL BE ASSIGNED TO A TABLE OR MILLWORK THE HEIGHT SHALL BE 1000mm ABOVE FINISHED FLOOR.
3. OVERALL DESIGN LAYOUT TO BE CONFIRMED WITH U OF S ICT DIVISION BEFORE PRECEEDING WITH FINAL INSTALLATION.

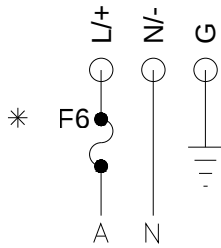
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Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN		DATE	22-JAN-2015	SCALE	N.T.S.
ELECTRICAL DETAILS VIDEO MONITOR POWER AND A/V INTERFACE WALL MOUNTING LAYOUT		DRAWN BY	D. DUBOWSKI	E / 35 DRAWING NO.	
		CHECKED BY	K. LEEDAHL		
		APPROVED BY	K. LEEDAHL		

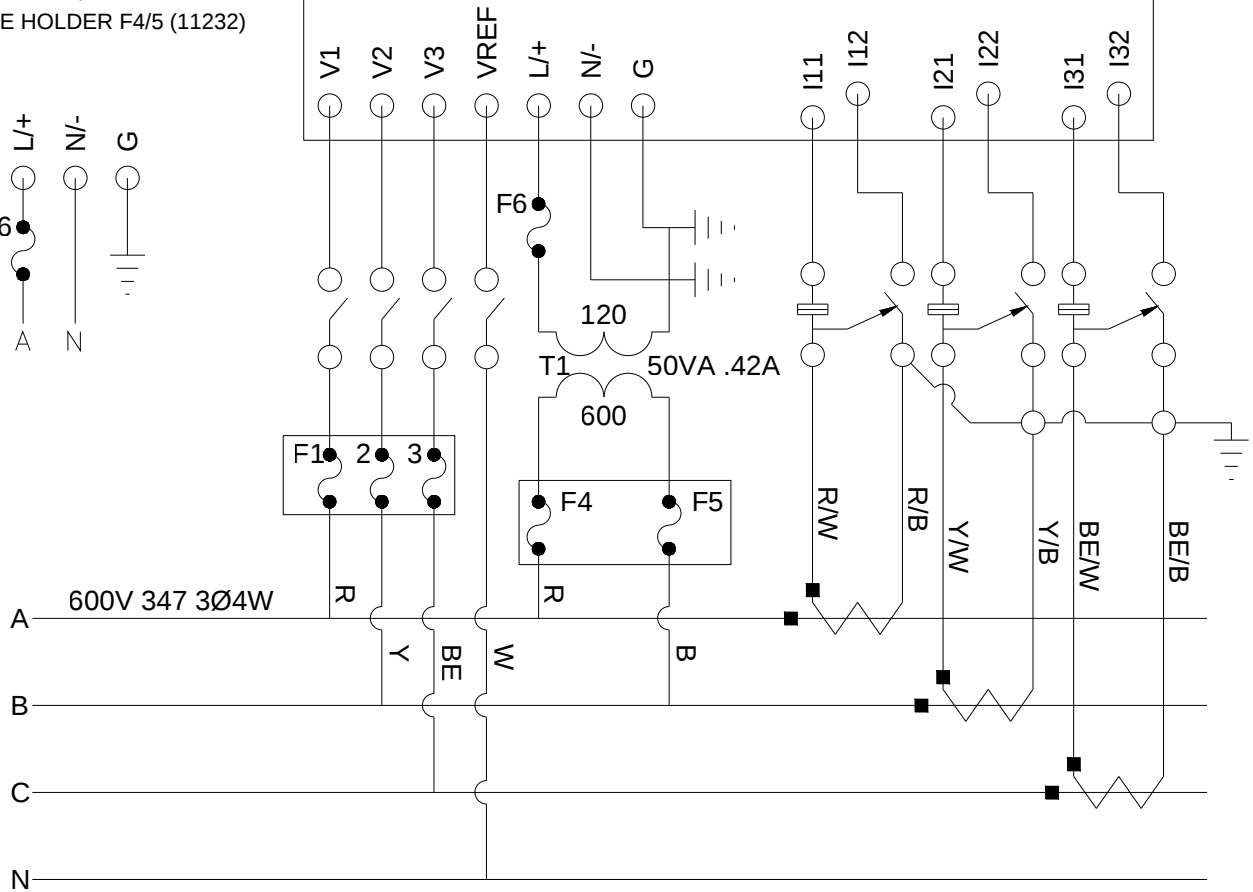


10 POLE TEST SWITCH (12621)
 F1 ATMR2 2A 600V
 F2 ATMR2 (11604)
 F3 ATMR2
 F4 ATMR1-1/4 SLOW (11853)
 F5 ATMR1-1/4 SLOW
 F6 ATMR3 3A 600V
 T1 SP50ACP HPS
 SPARTAN OR PH50AJ

* OMIT IF 208V 120 3Ø4W
 T1 50VA TRANSFORMER
 F4 ATDR1-1/4 (11853)
 F5 ATDR1-1/4
 FUSE HOLDER F4/5 (11232)



ION 7300 SERIES ENERGY METER 3-ELEMENT DIRECT CONNECTION DIAGRAM



G POOLE 2012

0	ISSUED FOR REFERENCE	DMB	16-JAN-2026
Rev.	Description	Appd.	Date

UNIVERSITY OF SASKATCHEWAN		DATE	16-MAR-2013	SCALE	N.T.S.
ELECTRICAL DETAILS		DRAWN BY	M. CHAHARYN	E / 37 DRAWING NO.	
ION 7300 SERIES METER WIRING DIAGRAM		CHECKED BY	G. POOLE		
		APPROVED BY	G. POOLE		



Legend

Rev.	Description	Appd.	Date
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Permits / Seals	
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Project

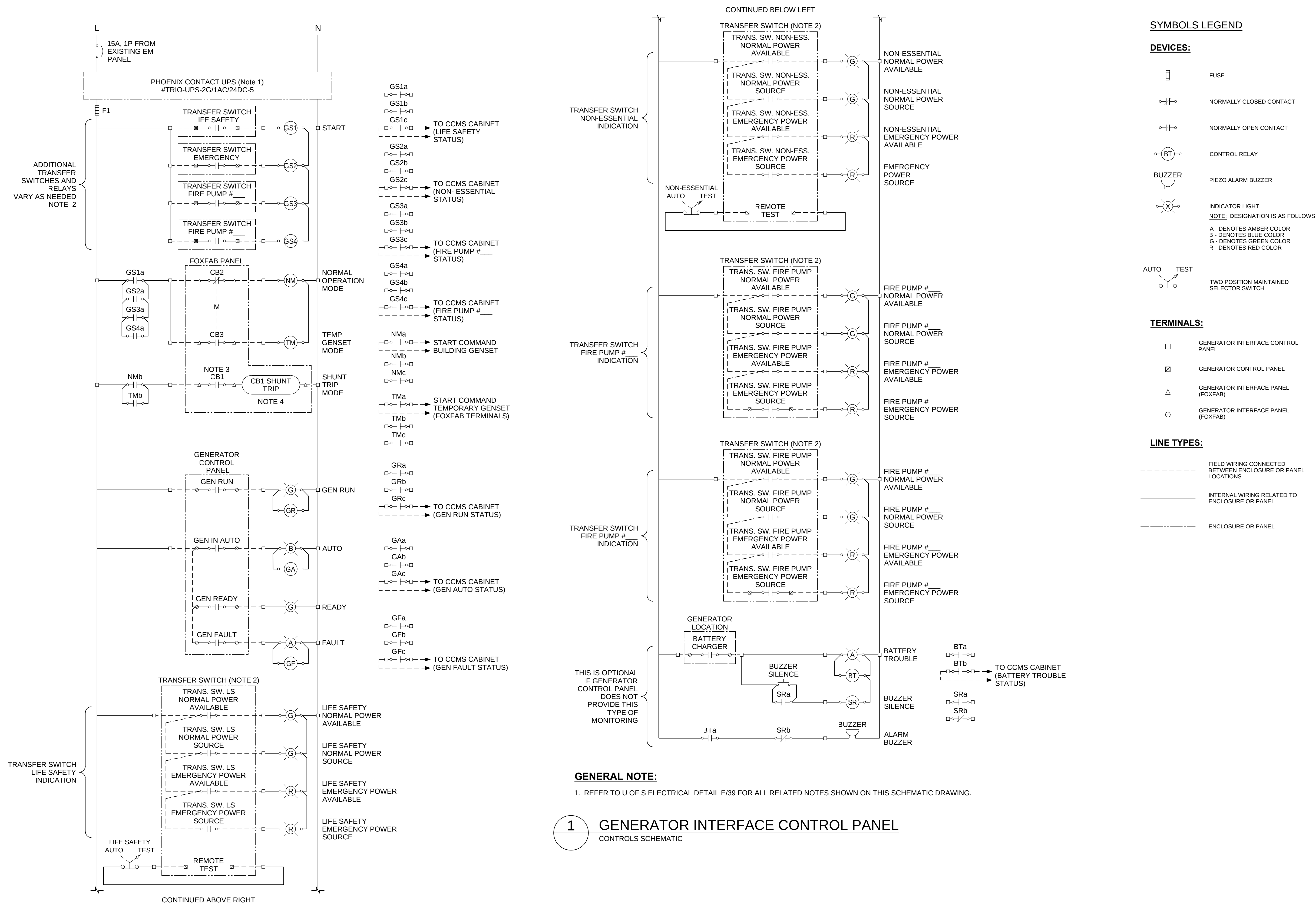
ELECTRICAL DETAILS

GENERATOR INTERFACE SYSTEM

Title

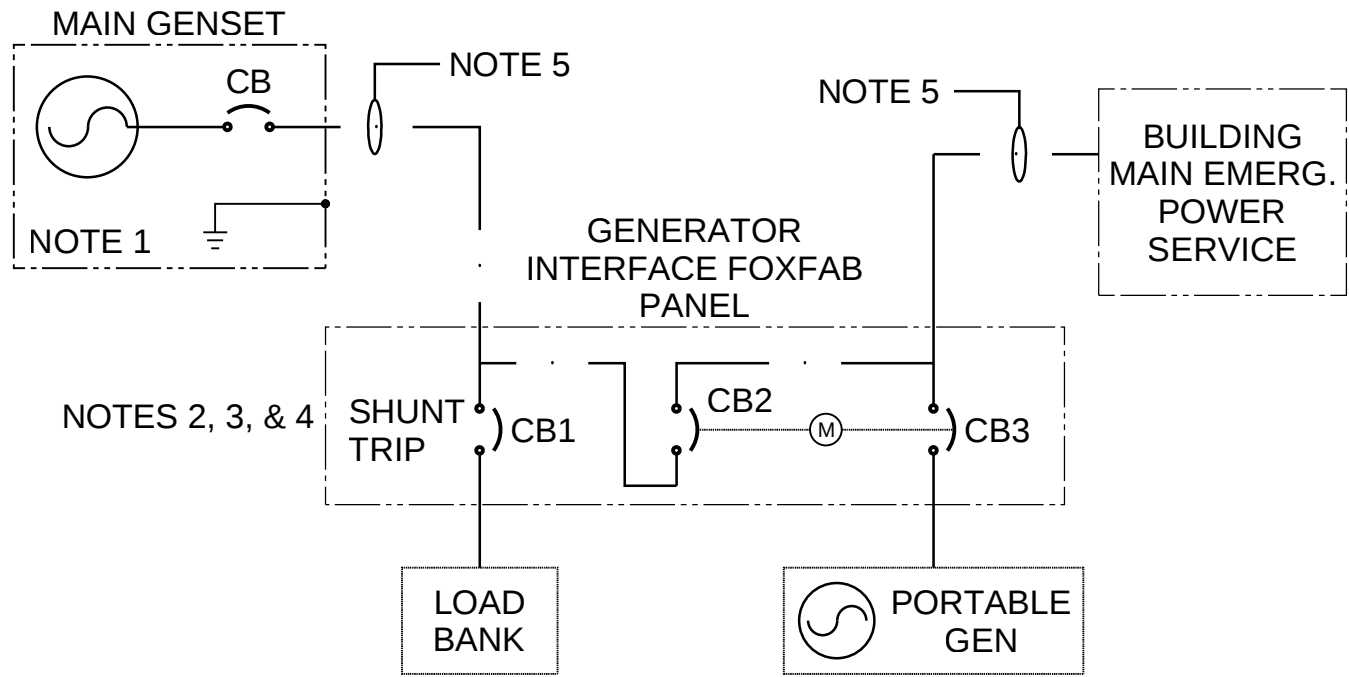
GENERATOR INTERFACE CONTROL PANEL SCHEMATIC, AND SYMBOLS LEGEND

Drawn D. DUBOWSKI	Design G. POOLE	Checked D. BALIAD
Project No.		Scale
UofS Drawing No.		As Noted
		Date
		02-MAR-2025
Drawing No. E/38	Sheet 1 OF 2	Revision 0



For Reference

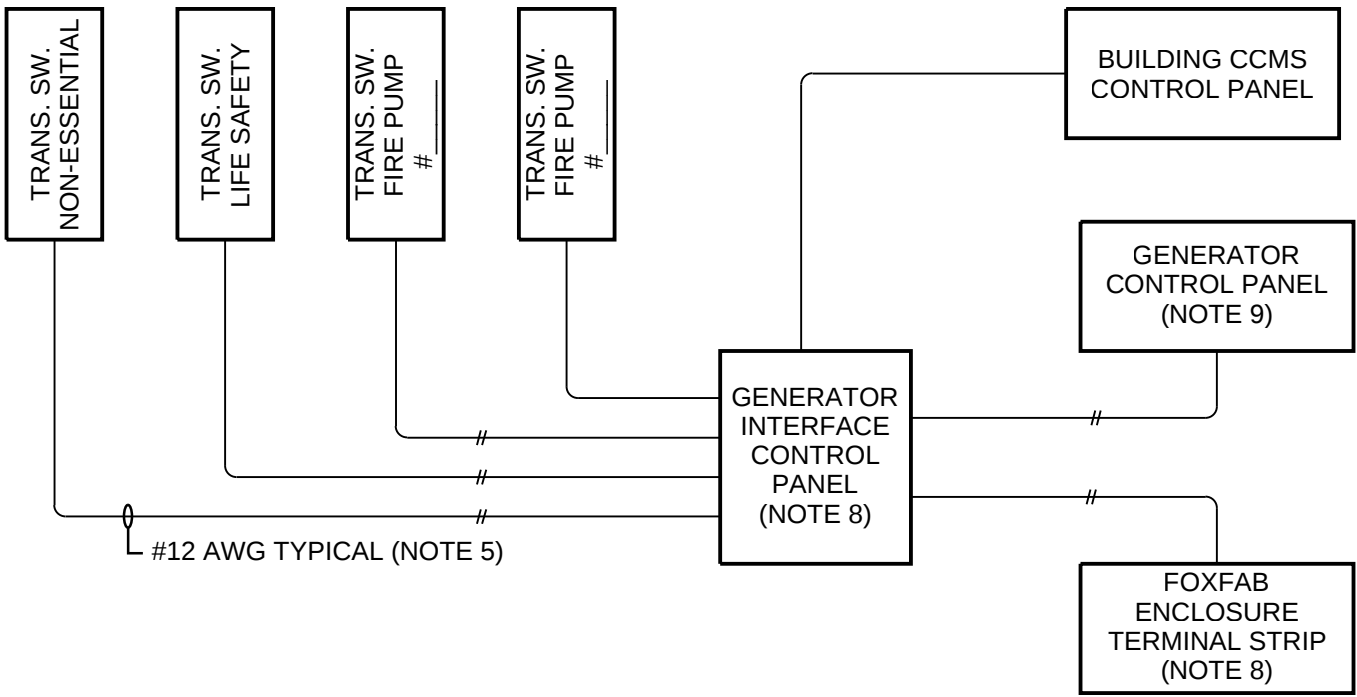
A2 (420x594 mm) W:\PMO\PMO_Public\Electrical Library\Details\Revised Details\E39 -Generator Interface Foxfab Panel(16JAN2026).dwg : Friday, January 16, 2026 4:32:17 PM : DWG To PDF.pc3



NOTES:

1. CONFIRM LOCATION OF THE GENSET WITH OWNER. DO NOT BOND GENSET NEUTRAL TO THE GROUND.
2. CIRCUIT BREAKER CB1 IS SUPPLIED WITH SHUNT TRIP OPTION. SIGNAL IS PROVIDED FROM GENERATOR AUXILIARY CONTROL AND TRANSFER SWITCH PANEL. REFER TO SCHEMATIC DIAGRAM FOR ADDITIONAL INFORMATION.
3. CIRCUIT BREAKERS CB2 AND CB3 ARE SUPPLIED WITH MECHANICAL INTERLOCKING BETWEEN BOTH BREAKERS.
4. ALL BREAKER SIZES ARE TO BE CONFIRMED DURING DESIGN DEVELOPMENT.
5. CONFIRM CODE REQUIREMENTS FOR CABLE SIZE AND TYPE. WHERE CABLE ROUTING IS WITHIN THE BUILDING, VITALINK (2 HR RATED) SHALL BE USED.
6. GENSET INTERFACE FOXFAB PANEL TO BE SUPPLIED WITH 10 COLOR CODED CAMLOC CONNECTORS. (PRODUCT NUMBER - FFCC-S2-C4-B-250LS180-SH1-250-LS180-250LS180-316-LA-AA-AD-AF) c/w SCHNEIDER BREAKERS WITH 2-N.O. AND 2-N.C. CONTACTS. DEAD FRONT COVER, LUGS, ANGLED CANLOC PLATE, CABLE HOLDER, DOOR WITH INTEGRAL LOCKABLE 3 POINT HANDLE AND STAINLESS STEEL HINGES WITH REMOVABLE PINS, WP RECEPT. FORM PANEL LP-15.1. CAMLOC CONNECTORS TO BE MALE FOR GENERATOR CONNECTION AND FEMALE FOR LOAD BANK CONNECTION. PROVIDE TERMINAL STRIP FOR ALTERNATE TEMPORARY GENSET CONNECTION AND LOCATE IT ON PLATE BESIDE GROUND CONNECTION. PROVIDE 1/2" KNOCKOUT WITH PLASTIC BUSHING FOR CONTROL CONDUCTOR ACCESS.

1 GENERATOR INTERFACE FOXFAB PANEL
BLOCK DIAGRAM



NOTES:

1. PHOENIX CONTACT UPS CAPACITY AND VOLTAGE IS DEPENDANT UPON GENERATOR INTERFACE CONTROL PANEL AND RELATED EQUIPMENT PLACEMENT.
2. NUMBER OF TRANSFER SWITCHES AND RELAYS VARY FROM BUILDING TO BUILDING AND ARE DETERMINED ACCORDING TO EMERGENCY POWER OVERALL SYSTEM DESIGN.
3. CIRCUIT BREAKER CB1 CONTACT IS ONLY CLOSED WHEN LOAD CELL TEST IS IN OPERATION. ANY DEMAND FOR NORMAL GENERATOR OR TEMPORARY GENERATOR USE WILL ACTIVATE SHUNT TRIP.
4. ONCE BREAKER CB1 IS TRIPPED BY SHUNT ACTIVATION, IT IS MANUALLY RESET AT THE BREAKER.
5. ALL WIRING SIZES ON BLOCK DIAGRAM ARE AWG. #12 SINGLE CONDUCTOR UNLESS STATED OTHERWISE DUE TO DISTANCE LIMITATIONS.
6. CONFIRM CONNECTIONS WITH OWNER FOR DIFFERENT GENERATOR MANUFACTURERS.
7. LOCATION OF ALL RELATED ENCLOSURES AND EQUIPMENT ARE TO BE CONFIRMED WITH OWNER BEFORE FINAL INSTALLATION.
8. THESE DRAWINGS ARE TO BE USED FOR REFERENCE PURPOSES ONLY. THE INTENT OF THESE DRAWINGS IS FOR EASE OF OPERATION AND MAINTENANCE. THE CONSULTANT IS RESPONSIBLE FOR VERIFYING THE INTEGRITY AND CORRECTNESS OF THE DESIGN.
9. THE ADDITIONAL INFORMATION ON GENERATOR INTERFACE PANEL (FOXFAB), REFERENCE U OF S DETAIL E/55C - GENERATOR INTERFACE PANEL DIAGRAM.

2 GENERATOR INTERFACE CONTROL
BLOCK DIAGRAM

For Reference



Facilities Management Division
University of Saskatchewan
University Services Building
110 Maintenance Road
Saskatoon SK
Canada S7N 5C5

Phone: 966-4700
Fax: 966-4080

Legend

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Permits / Seals

Project

ELECTRICAL DETAILS

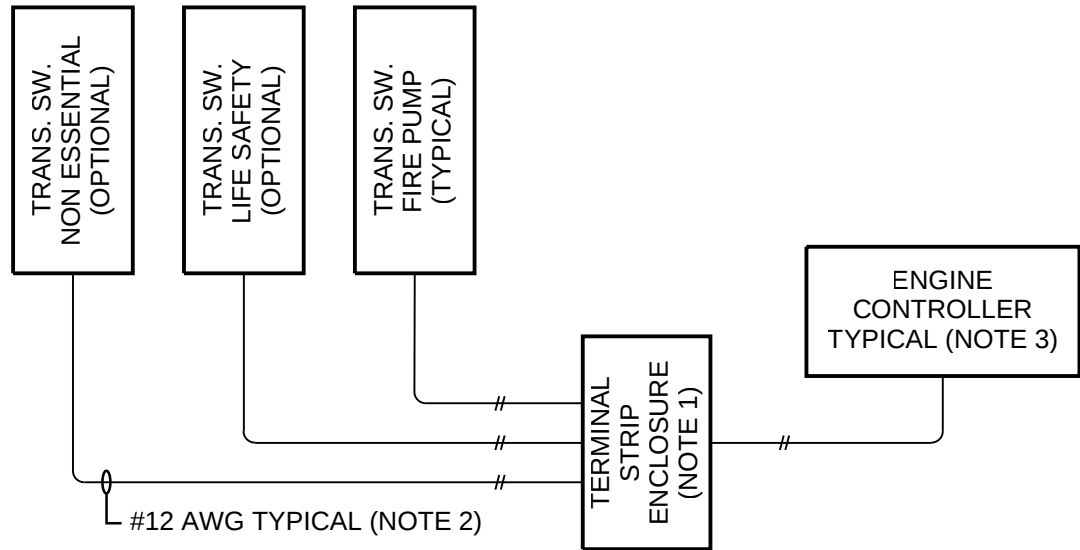
**GENERATOR INTERFACE
SYSTEM**

Title

**GENERATOR INTERFACE
CONTROL BLOCK DIAGRAM AND
FOXFAB PANEL BLOCK
DIAGRAM**

Drawn D. DUBOWSKI	Design G. POOLE	Checked D. BALIAD
Project No.		Scale As Noted
UofS Drawing No.		Date 02-MAR-2025
Drawing No. E/39	Sheet 2 OF 2	Revision 0

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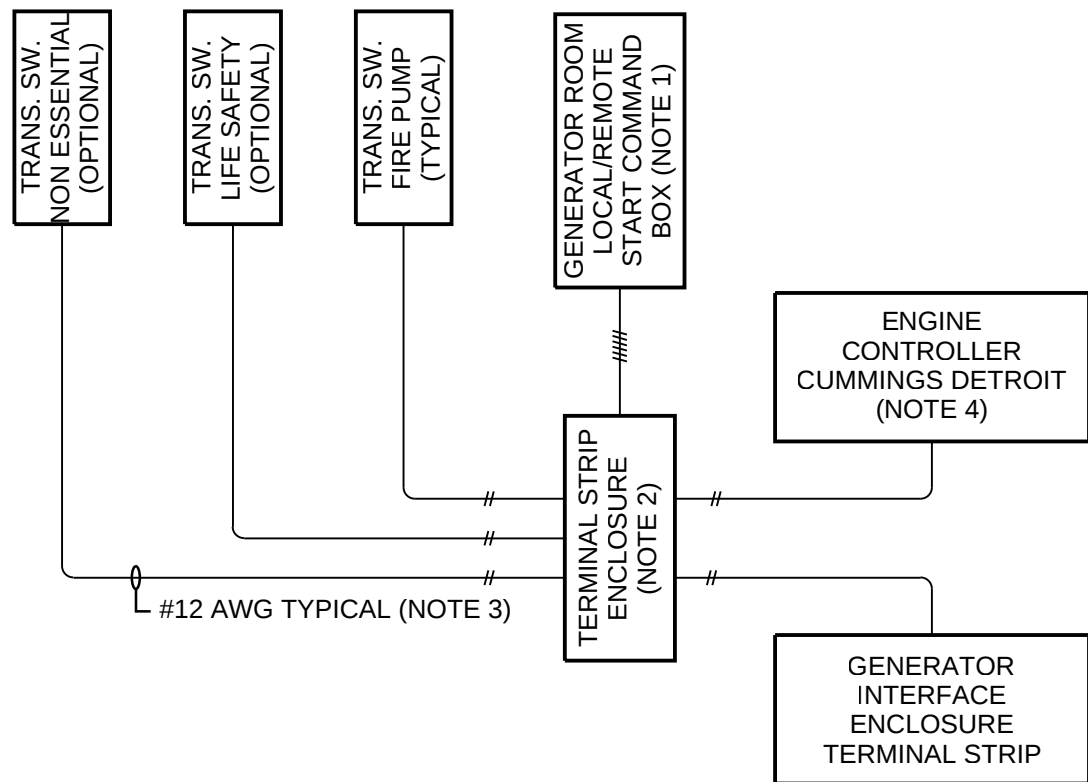


NOTES:

1. SIZE OF TERMINAL STRIP ENCLOSURE IS 12" x 12" x 6" c/w HINGED COVER. NEMA TYPE 1 RATED. MANUFACTURER: _____
2. ALL WIRING SIZES ON ABOVE DIAGRAM ARE AWG. #12 SINGLE CONDUCTOR UNLESS STATED OTHERWISE DUE TO DISTANCE LIMITATIONS.
3. CONFIRM CONNECTIONS WITH OWNER BEFORE FINAL INSTALLATION. CHECK WITH ENGINE CONTROLLER MANUFACTURER FOR ACTUAL CONNECTIONS.
4. LOCATION OF ALL RELATED ENCLOSURES AND EQUIPMENT ARE TO BE CONFIRMED WITH OWNER BEFORE FINAL INSTALLATION.
5. FAILURE OF ANY AC POWER AT ANY TRANSFER SWITCH WILL START GENERATOR.

1 NON-LRC/FOXFAB CONTROL

BLOCK DIAGRAM

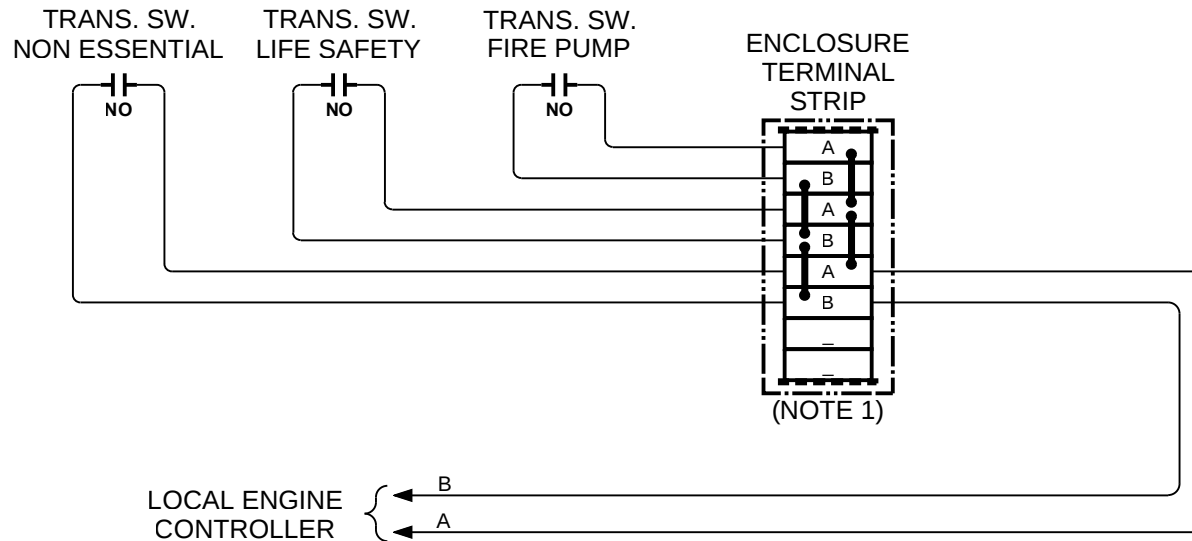


NOTES:

1. SIZE OF START COMMAND ENCLOSURE IS 10" x 10" x 6" c/w HINGED COVER. NEMA TYPE 1 RATED. MANUFACTURER: _____
2. SIZE OF TERMINAL STRIP ENCLOSURE IS 12" x 12" x 6" c/w HINGED COVER. NEMA TYPE 3R OR 4 RATED. MANUFACTURER: _____
3. ALL WIRING SIZES ON ABOVE DIAGRAM ARE AWG. #12 SINGLE CONDUCTOR UNLESS STATED OTHERWISE DUE TO DISTANCE LIMITATIONS.
4. CONFIRM CONNECTIONS WITH OWNER FOR DIFFERENT GENERATOR MANUFACTURERS.
5. LOCATION OF ALL RELATED ENCLOSURES AND EQUIPMENT ARE TO BE CONFIRMED WITH OWNER BEFORE FINAL INSTALLATION.

3 LOCAL/REMOTE CONTROL

BLOCK DIAGRAM

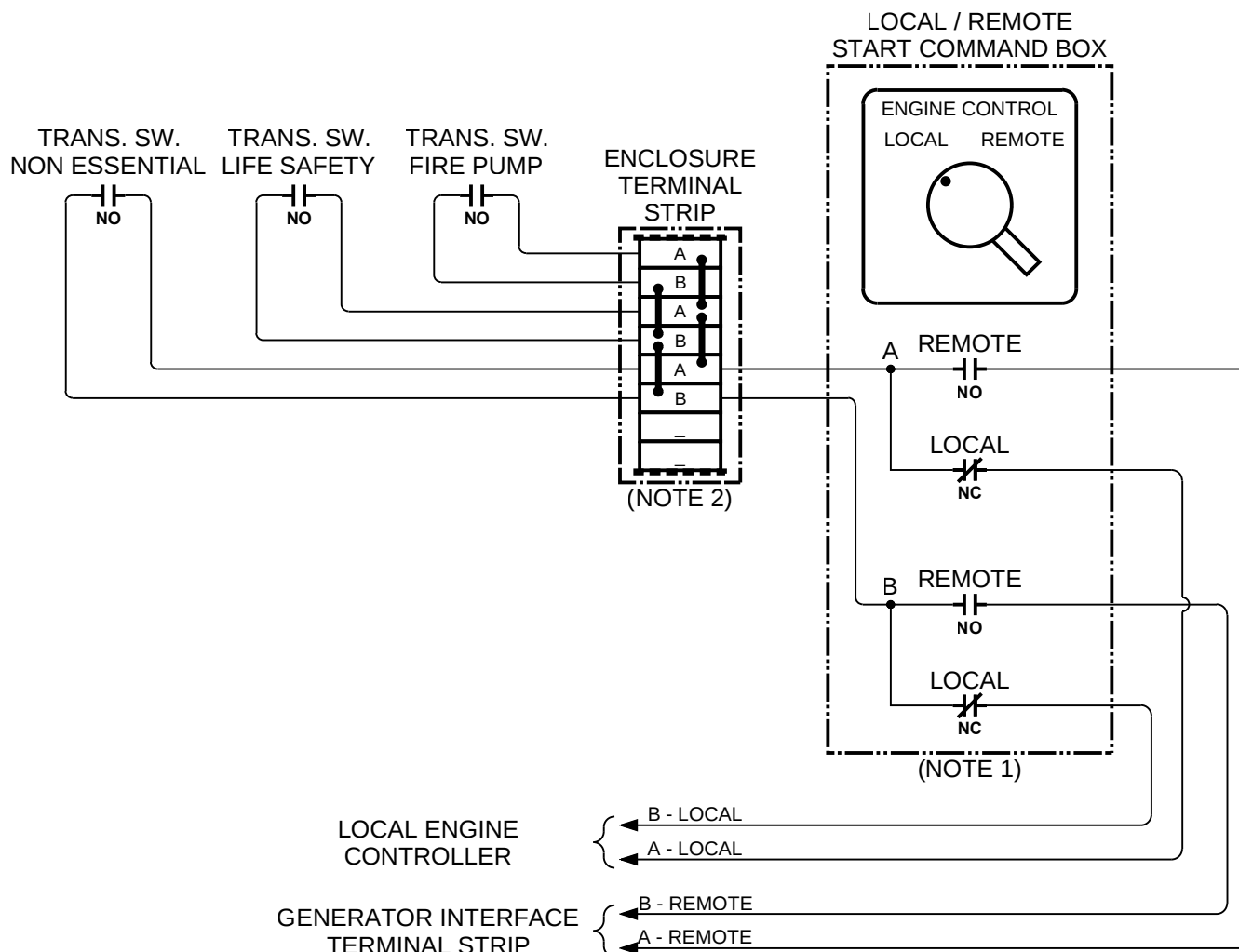


NOTES:

1. COMPONENTS FOR ENCLOSURE TERMINAL STRIP ARE AS FOLLOWS:
 - 600V RATED TERMINAL BLOCK: PHOENIX CONTACT _____
 - TERMINAL JUMPER BRIDGE: PHOENIX CONTACT _____

2 NON-LRC/FOXFAB CONTROL

WIRING DIAGRAM



NOTES:

1. ENGINE CONTROL LOCAL / REMOTE SWITCH AND RELATED COMPONENTS ARE AS FOLLOWS:
 - (1) LOCAL / REMOTE SWITCH IS TWO-POSITION, PAD LOCKABLE: SQUARE D #ZB4BJ294.
 - (1) PTE CUSTOM LEGEND PLATE: GENERATOR LOCAL / REMOTE.
 - (1) PUSHBUTTON MOUNTING BEZEL: SQUARE D #ZB4BZ009.
 - (2) NORMALLY OPEN CONTACT BLOCKS: SQUARE D #ZBE101.
 - (2) NORMALLY CLOSED CONTACT BLOCKS: SQUARE D #ZBE102.
2. COMPONENTS FOR ENCLOSURE TERMINAL STRIP ARE AS FOLLOWS:
 - 600V RATED TERMINAL BLOCK:
 - TERMINAL JUMPER BRIDGE:

4 LOCAL/REMOTE CONTROL

WIRING DIAGRAM



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University Services Building
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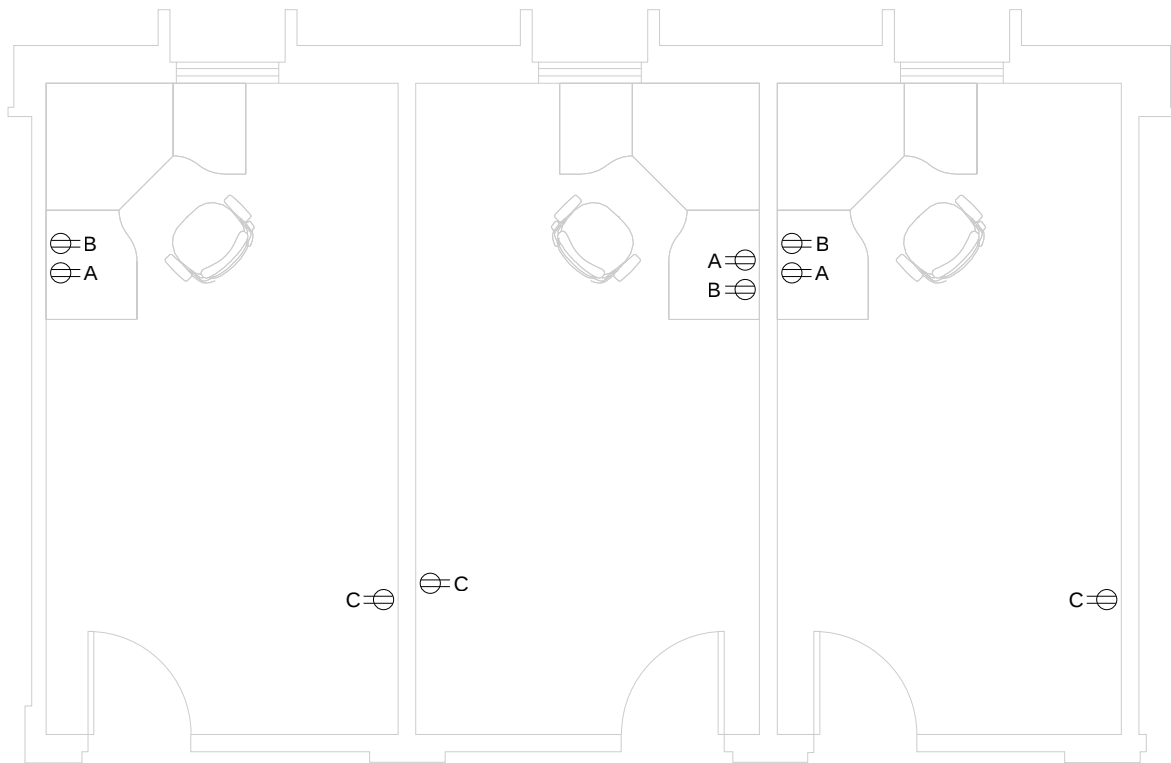
ELECTRICAL DETAILS

GENERATOR START CONTROL

Title

**NON-LRC AND LOCAL/REMOTE
BLOCK DIAGRAMS AND WIRING
DIAGRAMS**

Dwn. D. DUBOWSKI	Chkd. G. POOLE	Dsgn. D. DUBOWSKI
Project No.		Scale As Noted
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OFFICE ELECTRICAL OUTLET LAYOUT

NOTES:

1. OFFICE ELECTRICAL ARRANGEMENT SHOWN UTILIZES THREE SEPARATE BRANCH CIRCUITS WHICH ARE INDICATED AS (A), (B), AND (C).
2. THIS CONFIGURATION IS USED FOR GENERAL ARRANGEMENT PURPOSES ONLY AND DOES NOT ACCOUNT FOR SPECIFIC ELECTRICAL OUTLETS THAT MAY BE NEEDED FOR SPECIALITY EQUIPMENT WITHIN THE OFFICE SPACE.
3. BRANCH CIRCUITS SHALL BE ON CONSECUTIVE BREAKERS IN THE ELECTRICAL PANEL (i.e. 1-3-5 OR 12-14-16) WHEREVER POSSIBLE TO ALLOW SHARING A NEUTRAL CONDUCTOR.

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DATE **26-NOV-2025**

SCALE **N.T.S.**

ELECTRICAL DETAILS

**OFFICE ELECTRICAL
OUTLETS - LAYOUT**



DRAWN BY **D. Dubowski**

CHECKED BY **L. Dobson**

APPROVED BY **L. Dobson**

E

41

DRAWING NO.